The Builder.

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The Fitzwilliam Museum, Cambridge.

TWO or three weeks ago we adverted to the fact that the Directorship of this important institution was to change hands, the late Director having found, we presume, that it would hardly be possible to attend to this conjointly with his new duties as custodian of the Print-room at the British Museum. Professor Colvin's place at the Fitzwilliam Museum will be taken by Mr. Waldstein, who, it may be observed, is not a member of the English University, but whose recent lectures at the Royal Institution and in Cambridge on the Art of the Greeks attracted much attention and admiration; and we may presume that the Syndicate (composed of the Vice-chancellor and eight members of the Senate of the University of Cambridge) in whose hands the appointment rests, have been considerate in their choice, and that the new director is one who will keep up the traditions of the Fitzwilliam Museum as it was in the past, as well as develop its future more extended capabilities of usefulness.

In regard to these latter, it may be observed that there is at present an important development and extension at the Museum in progress, the projection of which is mainly due to Professor Colvin, and which will afford important additional facilities for the study of antique art in Cambridge. But before describing these additions, it may be worth while, at what may be called a critical point in the history of the Fitzwilliam Museum, to recall what probably many of our readers have forgotten or have never properly realised, what is the origin and what are the contents of this Museum, so familiar to every one in Cambridge, so little known except by name to many beyond the precincts of the University town.

In 1816, there died the late Viscount Fitzwilliam, formerly of Trinity Hall, Cambridge, a typical connoisseur and *dilettante* of his day, who had the advantage of combining taste and knowledge in matters artistic and archæological with the possession of wealth which enabled him to gratify his taste in a satisfactory manner. But he was minded that the works which had afforded him gratification during his life should afford gratification and, if possible, instruction to others after his death, and bequeathed the whole of his collection of books, paintings, illuminated MSS., and engravings to the University, together with the dividends of 100,000*l.* in South Sea Annuities, towards the maintenance and proper housing of the collection. These dividends were allowed to accumulate until 1837, when they had reached the sum of 40,000*l.*, and then it was considered the time had arrived to build, and the late Mr. Basevi, one of the most learned, refined, and conscientious students of Classical architecture of his day, was commissioned to design the building, now known as the Fitzwilliam Museum.

Basevi, following the feeling and taste of his time, faced his building with a grand and costly Classic portico in the Corinthian style, Roman rather than Greek, but not without much of Greek feeling and refinement of detail. This, of course, is a mere screen to the real building behind it; it is the architecture of pomp, not of utility; but there are occasions when architecture may rise above utilitarian trammels, when the architect may lawfully launch out into splendours not absolutely demanded by the necessities of the case, but elaborated for the sake of what is the real object of all art, enjoyment. The objection which may logically be brought against Basevi's portico is only that which applies to all pseudo-Classic art; it is "pseudo," and only an imitation of the art of another age. But apart from this, the front of the Fitzwilliam Museum is unquestionably one of the very best things which modern revived Classic architecture has achieved in this country, and perhaps in that way it cannot be said to be equalled anywhere except in Elmes's famous building at Liverpool. The central portico is spacious in dimensions, elegant and refined in detail, and the massive pilastered blocks at the angles serve as a foil to the elegance of the centre portion, and give a monumental appearance of dignity and repose to the whole. We may be convinced that the mere reproduction of Classic forms was an architectural error. There is an unreality about the business which always leaves the discreet critic with a sense of what is called in some old Dissenter's hymn "an aching void"; but, at least, the *réchauffé* of Classic forms is here done about as well as it can be done, and obviously not without that sense of enjoyment of his work on the part of the architect, which is an important element in the truly artistic spirit. And if Basevi copied, let it, at least, be noted to his credit that he copied a style in itself noble, dignified, and consistent; and so far his ghost can, at least, afford to look down upon those more recent architects, equally copyists, who have taken to copying the tag-ends and remnants of late Renaissance, or bastard Classic, as it may be called, and tying them up into architectural medleys and curiosity-shops from which all sense of style, dignity, or consistency has vanished.

On Basevi's death, in 1845, Cockerell took the completion of the work in hand, as he also undertook the completion of Elmes's building on the death of its original designer. The next and last step in the architectural history of the main building of the Fitzwilliam Museum was the remodelling and decoration of the entrance-hall by the late Mr. E. M. Barry. He altered the disposition of the stairs, probably for the better, arranging the commencement of the lower flight as a central stair opposite the entrance, and he went into an expenditure of 20,000*l.*, on the whole with a result which cannot be said to be adequate to the cost, except as far as mere material richness is concerned. There is an abundance of coloured marbles and gilding, but a lamentable decline from the purity and dignity of the exterior portico through which this vestibule is approached.

The contents of the Fitzwilliam Museum up to the present date include the original bequest of the founder, supplemented from time to time by other important gifts or purchases. The original bequest included a large and valuable collection of music, parts of which have been published at various times, and which is well known to musical connoisseurs. The collection of pictures was added to some years later by an important bequest of Mr. Daniel Mesman, of 248 paintings and some drawings and prints. In 1864 Colonel Leake's collection of antique coins was purchased, with the funds of the Museum, and in 1876 the Museum purchased from General Cesnola a small collection of highly interesting and valuable specimens of Phœnician, Greek, and Roman glass, a part of that admirable collection which our complacently economic Government refused to secure for the British Museum. There have been various other minor bequests and purchases, but the details are so easily accessible in the Cambridge University Calendar that it is not worth while to reproduce them here at length. The result hitherto has been a building the contents and disposition of which may be roughly summarised as follows:—On the lower floor is a library containing the original collection of books, music, MSS., and engravings. The collection of engravings is one of the finest and most representative in existence, and, under Professor Colvin's management, these have all recently been carefully mounted in sunk mounts, bound together in large volumes, so as to be available for study with as little danger of damage to the contents as possible. In the same room are Colonel Leake's coins, a portion of which are placed open for inspection in a case ingeniously arranged, so that by a mirror a little way below the glass shelf on which they rest, both obverse and reverse can be seen without leaving the coins open to be handled. In another long gallery on the lower floor has been for a long time a large and far too crowded collection of casts (including the first casts sent to this country of the statues found at Olympia), some few original antique marbles, the collection of glass before alluded to, and other heterogeneous casts. About the future of this portion of the collection we will speak just now. Upstairs are the picture galleries, where there is a collection of

paintings chiefly of the Dutch school, but including others also, and containing a good many works of high interest and excellence, intermingled with others of rather doubtful value. As in so many other buildings of the same date as this, the practical requirements of the case have been little considered, and the picture galleries are lighted from a lantern light so high and so far from the pictures as only to shed a most doubtful and insufficient light. The best remedy for this would seem to be that which is thought of, viz., piercing the large cove, under the lantern, for external light. The best way to do this would be to retain the trellis-bars of the cove, and introduce light between them, thus keeping the constructional character of the work. This expedient, which it is to be hoped may be adopted shortly, will enable the pictures to be properly seen, the finest of which are now comparatively lost, except on days of exceptionally bright sunshine.

So much for the existing Museum; and now about the addition and extension which is being made. It has for some time past been recognised that it would be desirable to make a separate sculpture gallery to contain the casts and to constitute a museum of sculpture, and at first the idea was to add to the present building. If this were to be done in any way worthy of the existing structure, and so as not to be an excrescence upon it, the project would unquestionably have been a very costly one; and perhaps the question also would have had to be asked, Where, at the present moment, could there be found any architect competent to carry on or add to the work of Basevi in the same spirit and with the same refinement of taste? We fear that echo would have answered, "Where?" and paused a long time for a reply; not because there may not be equal ability with that of Basevi to be found, but because the study of the purer and more dignified forms of Classic architecture (the educational value of which, at least, is perennial) has been of late so much neglected. The point of economy has, however, settled the question of adding to the original building, and a plot of ground has been obtained not far from the Museum and adjoining Peterhouse College, where a building is now approaching completion which will provide accommodation for all the casts which are the property of the Fitzwilliam Museum, for a collection of local antiquities brought together by the Cambridge Antiquarian Society, but at present dispersed in various houses, and for a lecture-theatre. Of the cost, 9,000*l*., 2,000*l*. are contributed by the University, and 7,000*l*. from the Fitzwilliam funds. The building, a rather low one-story structure spreading over a good deal of ground, and lighted mainly from the roof, has been planned by Mr. Basil Champneys, with the concurrent advice of Professor Colvin. Entering the door, and passing through the entrance lobby, the visitor will see before him a long gallery ending in an apse, and partially divided halfway by a stylobate and column projected into the room from either wall. In the nearer half of the gallery will be arranged the archaic casts; in the further portion, those of the great age of Athenian sculpture. On the right hand a columned opening, or small ante-room, with a niche at either end, gives an oblique vista into another gallery, parallel with the Athenian gallery, in which sculpture of the later Greek period will be placed. On the left of the centre gallery another, also running parallel, will contain casts of Roman work. If instead of entering the sculpture galleries through the lobby, the visitor diverges through a door on the left of the lobby, he will find himself in the first room devoted to the local antiquarian section, which runs immediately behind the façade of the new building, and leads to the right to a longer gallery devoted to the same objects, running along the boundary of the site adjoining the Peterhouse property, and parallel with the sculpture galleries. A library is so placed as to be accessible from both the sculptural and antiquarian departments, and behind this a lecture-theatre, also central and communicating with both sides of the building. This is loftier than the rest of the interior, lighted by what may be called clearstory windows; it is arranged to seat an audience of something over 200, and the lecture platform allows of a considerable space on either hand, on which some of the casts can be wheeled in and displayed to the audience for immediate illustration of the lectures. Rooms for the curators of each department are provided.

The walls have been coloured in tints varying in each of the sculpture galleries, and intended to be complementary to one another, so as to harmonise when two of the rooms are seen together through the openings giving access from one to another. The prevailing tones in the large sculpture galleries are warm buff and dull reddish tints, and the intermediate recesses or ante-rooms are coloured a cool grey-blue, against which the columns flanking the entries stand out white, with very good effect. Some of the internal details we cannot admire; for example, the low-proportioned wide doorways in some of the rooms, with pulvinated friezes and exceedingly heavy pediments over them. Precedents may be found in the works of Wren or Vanbrugh, no doubt, but that does not make it any better. In the main, however, there is no question that this will prove a very well-arranged gallery of representative casts of antique sculpture, and when filled with the works which are to be placed there, will be not ineffective as an interior.

Of the casts intended for the new gallery, some are still to arrive from abroad, others are the former contents of the ground-floor of the gallery of the main building. This latter gallery will now be used to contain the few marbles which belong to the Museum, some Egyptian and other work at present nearly hidden away in the corridors, and the specimens of glass before referred to.

The new sculpture gallery, which it is expected will be complete and opened some time in the course of January, will, we presume, be under the same rules as to accessibility as the Museum itself. This is open to the public, or to all those who come under the rather vague definition of "respectably-dressed persons" (the wording of the rules, which seems to throw a rather invidious duty on the doorkeeper) between ten and four from September 1st to April 30th, and between ten and six from May 1st to August 31st, with the exception of Fridays, which are reserved for members of the University. Permission to copy or draw must be obtained in writing from the Vice-Chancellor.

We have so often urged the importance of good representative collections of casts, that the establishment of what seems likely to be an exceptionally good one in one of our great universities is an event worthy of special comment, and we may congratulate Cambridge on having so ably shown the way in this respect.

THE PROJECTED RAILWAY THROUGH THE PARKS.

PROS AND CONS.

London has become so accustomed to the inconvenience of the location of the stations of the Eastern, Northern, and Western Railways that people seem to have taken it for granted that Shoreditch, St. Pancras, Euston, and Paddington are the natural starting points for five great radial lines of railway. There are, perhaps, but few among us who distinctly remember the active hostility with which, from 1828 to 1844, corporations and municipal bodies of all kinds opposed the entrance of the locomotive within their limits. Thus Mr. Robert Stephenson was forced to start for Birmingham, in the first instance, from the inconvenient suburb of Camden Town, and it was not until 1834 that, taking advantage of the existence of a deserted tract of land, in the occupation of market-gardeners, cow-keepers, and firework-makers, the London and Birmingham Railway Company obtained Parliamentary sanction for their extension to Euston-square, then lying on the fringe of inhabited London. In the same way, the stoppage of the Great Western Railway at Paddington was accidental. One of the first projects for that line joined the London and Birmingham Railway at Wormwood Scrubbs; and it was owing to that arrangement that the line from Camden Town to Euston Station was made, in the first instance, wide enough for four lines of rails. For a long time the station at Paddington was only a temporary wooden erection, and it was not until he had come to the conclusion that it would be long before assent would be given to a passage through or under the parks, that Mr. Brunel turned his attention to the erection of the most elegant of our railway stations.

One of the previsions of this great engineer is now brought before the public, not without some prospects of success. A station close to King-street, Westminster is rather too far to the south for the convenience of the western traffic; but it is possible that it is the only site now available on terms that are commercially possible. The triangle to the east of Trafalgar-square presents, we think, the true site for our northern and western departures; but the cost of purchase would probably be very high, and the space available is both small and ill-shaped for the purposes of a station. It is possible that some of the area to the south of the Strand, and to the west of the present Charing-cross station, may hereafter be converted into the site of a great west-end station; but we are not aware that this has hitherto been suggested. In fact, the subject has never been regarded from the stand-point of the convenience of London, although, as matter of private speculation or as a means of obtaining traffic from one or another railway, more than one project dealing with this part of the metropolis has been brought forward.

The proposal to carry a line from Praed-street, Paddington, to King-street, Westminster, is one that demands mature consideration, as there is a good deal to be said on each side of the question. In the first place, it is not to be expected that the terminus of the Great Western Railway will be advanced to King-street, even if the line be made. The situation is too far to the south, and too much out of the main line of western traffic, to be anything but an auxiliary passenger station. As such it would have a certain convenience, and the question is whether the gain to the travelling public would be adequate to the cost. The distance we make to be a little over two miles and a quarter. But there exists already a railway, with which it would not be impracticable to form a junction, by running over which very much the same object might be attained. From Praed-street to Westminster Bridge, by the Metropolitan and Metropolitan District railways, is a little over 5¼ miles (5 miles 29 chains), and by using this route it is possible to attain very much of the object of the new line at a very moderate cost, and without inflicting possibly a serious injury on a railway system which is in possession of the ground, and to which the inhabitants of London owe very much. So strong is this part of the case, that its decision seems to us rather to turn on the mode of conducting the traffic than on any question of distance. As far as this is concerned, it may be gravely doubted whether it is worth while to spend 400,000*l*. or 500,000*l*. in order to save three miles of rail. But, on the other hand, it must be remembered that there are eight stations between Praed-street and Westminster Bridge, and that the running time occupied is twenty-seven minutes. Four minutes would be ample to allow for the transit of a train by the straight route, if no intermediate stations were allowed; but 2½ minutes must be added to that time for every station. Tyburn Corner, as it used to be called, would probably demand one station, and Hyde Park Corner another, so that the gain in time would be reduced to 18 minutes,—an important consideration, surely; but as to whether it is worth the cost, doubtful.

The passengers on the Great Western Railway (taking the year 1878 as the last which has been analysed by Mr. Fleming in his "Index to our Railway System") are under 400 per mile per week. Of course the number using the London terminus is far larger than the average for the line. According to "Bradshaw," thirty-two trains leave Paddington daily, and if for each of these, together with the incoming trains corresponding to it, we allow fifty passengers, we should have 6,400 passengers per diem. On the Metropolitan District Railway the number of passengers averages 10,000 per mile per day, and the gross receipts average about 660*l*. per mile per week. If half the estimated number of Great Western passengers were to use the new line (which probably is an extravagant allowance), at equal rates the return would come to a little over 200*l*. per mile per week. Taking the cost per mile at half that of the District Railway, and the working expenditure at fifty per cent., which is lower than the Great Western rate of working, we should have a net return that would allow a little under three per cent. on the capital. Is that worth the costly strife which may be stirred up by the plan?

There is one serious difficulty against which, in their desire to disarm any public opposition to boring under the parks, the promoters of the new scheme have run their heads. We refer to ventilation. The distance from Tyburn Corner

to Hyde Park Corner is about double the longest distance from station to station on the Underground line, and an equal distance again intervenes before reaching King-street. In round numbers there are two runs of a mile each without any ventilation but that of a through draught, however that may be maintained. The result of accurate calculation (see Proceedings of Institution of Civil Engineers, vol. xliv., p. 44) as to tunnel ventilation is, that for every five passenger-trains that pass through a tunnel the air should be replaced three times. The difficulty of ventilation, according to the same authorities, increases as the fourth power of the length of the tunnel, so that the actual experience of the fouling of the air in the Underground Railway gives but little idea of what it would be, with an equal traffic, in a tunnel with unventilated sections of a mile in length. And even with a much lighter traffic, it is obvious that the question of ventilation is one of so much importance that Parliament cannot be expected to authorise any new scheme for tunnelling under London without being furnished with adequate scientific evidence as to the mode, both as to theory and as to practice, in which this question is to be dealt with.

It is, we need hardly say, in the interest of railway proprietors, as well as in that of all cautious promoters of public works, that questions of that nature should be definitely settled on admitted principles, rather than fought out, under all the chances of war, before a non-scientific tribunal such as a Parliamentary Committee. Finality in railway-making is no more to be expected than finality in the increase of population. What is desirable is that in that continued outlay of capital which is a function of our national growth, the expenditure should be so directed as to secure the best mechanical, and, therefore, the best commercial, results. That a subterranean line from Westminster direct to Paddington may become desirable, is highly probable. The first question is,—has the time yet arrived? And the second question is,—Is it the long or the short traffic which it is intended to accommodate? Until the mileage traffic on the District line equals that on the Metropolitan line, and until the convenience to be gained by direct railway connexion between the Paddington Station and this important means of circulation be tested, we think the construction of the new line may be premature. At all events a full discussion of the points that we have raised is essential for the satisfaction of the public. If the promoters of the new line have worked them all out, it will be at once their duty and their pleasure to give full publicity to their calculations.

One word as to the levels, a not unimportant feature of the case. The fall from the level of the rails at the Praed-street Station of the Metropolitan Railway to that of the rails at the Westminster Bridge Station of the District Railway is nearly 82 ft. (81·51 ft.), giving a gradient of about 1 in 132,—a by no means unmanageable inclination. The surface of the ground at Praed-street lies on the 80-ft. contour line above Trinity high-water mark; and as the fall through the park to Hyde Park Corner is 40 ft., there seems no reason why the tunnel may not be carried at such a depth as to produce the minimum effect on the open area of the park. Thence through St. James's Park the fall of surface is more rapid. The 10-ft. contour is reached a little above Birdcage-walk, and although the level of the sheet of water in the inclosure is not marked on Milne's map, it can be little, if anything, above high-water level. Through this part of the route, therefore, tunnelling, strictly so-called, is impossible, and the accomplishment of the two conflicting aims of keeping a practical level for the railway, and avoiding any permanent interference with the surface of the ground, will not be easy. We cannot see, from a comparison of these levels, how the last half mile of the line can well be any other than an ordinary railway, without encountering a series of costly works, the full extent of which it must be extremely difficult to estimate. Again, whatever may be the precise spot selected for the crossing of the Knightsbridge-road west of Hyde Park Corner, the effect on a traffic which is already dense of the establishment of a new railway station has to be anticipated. We by no means urge these as fatal objections to the proposed line. But they are serious points as to which the residentiary proprietors will do well to take good professional advice, in the event of any deposits being made for a Bill. The position of Buckingham Palace, and the possible effect of the construction of a railway between that structure and the Horse Guards, have also to be borne in mind. The promoters of the Bill speak of a sort of tacit consent on the part of the Government. But the public have a right to know whether the important questions that we have just indicated have been studied by the Board of Trade, or any other department whose consent may be necessary.

As long as the only question is that of allowing a line to bore beneath the ground, the public convenience may warrant the expectation of a very liberal treatment on the part of the public authorities. But the levels are stubborn facts, and although they are more easily to be dealt with by the railway engineer than by the canal engineer, they are not to be played with. We do not say that it is impracticable to run the rails as low as low-water mark, and thus to keep the line under some kind of roof at the present level of the ground. But we do say that such a plan will demand a mature consideration, and a practised skill, of the perception of the necessity for which we do not see any intimations in what has yet come before the public on the subject.

THE PRE-HISTORIC ART OF AMERICA.

A VAST amount of patronising praise is at the present moment bestowed upon the creations of the painters and engravers of the New World, apparently on the score of the singular success of so exotic a feature in a country which has no artistic past. Recent research reveals, however, that America, far from being in this deplorable condition, which places it in so inferior a position with regard to the Old World, can boast the existence of a native art the productions of which, to say nothing of its origins, are of an antiquity such that they can alone be designated as "pre-historic." It may be remembered how, not long since, the discoveries of the cave relics of Dordogne, and, later, in our own country and other portions of Europe, startled the world of art and archæology, and what interesting advances have been since made in a science for the chief progress of which we owe a debt of gratitude to the Scandinavians. Something of the same interest attaches to the singular and curious remains of pre-historic art which are scattered over the great American continent, not alone in the United States, in Mexico, and Central America, but also over a vast portion of Southern America. Research has revealed the existence of an immense field of study, but has so far offered no satisfactory solution as to the origins of this native pre-historic art.

From time to time information has reached the Old World concerning the discovery of relics of the so-called "Mound Builders" and the "Cliff Dwellers," whose singular architectural creations are to be found in various portions of North America. Echoes of wonderful discoveries in Central America come from across the ocean, and those who follow the progress of archæological study are well aware of the results of the earnest researches of the various archæological societies of America, but to the general reader the sum total of the information acquired remains, to say the least of it, in a somewhat nebulous condition.

An authority of weight, the Marquis de Nadaillac, has lately published in the pages of the *Revue des Deux Mondes*,* an admirable and lengthy paper on the prehistoric art of America; so completely does the author sketch out the actual position of our knowledge of this strange problem that a summary of M. de Nadaillac's article cannot fail, we think, to prove of interest to English readers.

Of one fact recent research leaves us in no doubt,—that man lived in America during what is known as the quaternary epoch, in company with the gigantic mastodons and pachydermata. As with his European contemporary, the man of these prehistoric ages was a nomad, a dweller in caves, his only arms against the wild beasts on whom he preyed being a few flint weapons, but no trace of art of any nature can be discovered; in this feature it is interesting to remark that the American prehistoric man is behind the European. The next progress brings us many, but still untold, centuries forward; the colossal animals of the quaternary epoch have ceased to exist, and man, from being a nomad, has settled down, his residence during a considerable time in certain spots being proved by the masses found of *débris* of food,—*kjökken-möddings* or kitchen remains, as the Danes have characteristically termed these heaps. Huge banks of shells accumulated by man have been discovered in various parts of America, in Newfoundland, in Nova Scotia, in Massachusetts, in Louisiana, on the shores of the Gulf of Mexico, while the shell mounds of the Tierra del Fuego have often been described. Excavation among these shell drifts has brought to light hatchets, knives, harpoons, and instruments of horn and bone used by the people of whose food these drifts are the relics, for agriculture as yet is unknown, and it is alone on fish and the chase that they lived. The few rare remains of pottery reveal a primitive art, the clay is mixed with powdered shells, is moulded by the hand and dried in the sun, the sole ornamenation consisting, as in the similar products of European civilisation, of a few incised lines; one feature is interesting, the evidence that the same needs, the same surroundings, have produced an almost indentical civilisation, with the peculiarity which we have before mentioned, that the American is, however, distinctly behind the European in artistic skill. It is alone, as yet, from the shell-drifts of Brazil that any ornaments have come, and of these, some in gold, the Peabody Museum at Cambridge, contains, it may be mentioned, several interesting specimens.

To attempt to assign a date to these relics would, in the present state of our scientific knowledge, be more than rash; geologically speaking, and this is the nearest we can hope to approach, the man of the shell drifts existed between the disappearance of the mammoth animals and the introduction of the habitual use of the metals.

To a further stage in the development we may trace the singular rock paintings and sculptures scattered so widely over the two Americas. As in the art of the Egyptians, these inscriptions are of a hieroglyphic nature; they are found in Central America, in Venezuela, in Nevada, in California, in Arizona, in Colorado, districts now comparatively deserted, but once clearly occupied by an active population. The cliffs which surround the Great Salt Lake near Utah,—the home of the Mormons,—are covered with mysterious inscriptions executed in a distant part and cut in the hard blue granite by a race evidently of a very different stamp to that of the modern Indians. The existence of these rock-cut sculptures has long been known; two centuries ago the Jesuit father Marquette described some of these mysterious inscriptions incised on the rocks of Illinois. Strange, weird, semi-Asiatic, semi-Egyptian, and Assyrian in their character, these sculptures,—in some cases rudely coloured,—cover the sides of many a rocky ravine throughout the whole length and breadth of North and South America. Cut in the hardest materials, the tools used for their production we know must have been of the most primitive nature, made doubtless of obsidian, the stone and granite sawn with the fibres of the agave, and perhaps emery dust; sometimes split by the aid of heat, sometimes polished, but in every case no iron tool used. In South America the region of the *piedras pintadas* (or painted stones) extends from Guiana to Patagonia, through the wild regions of Brazil and La Plata, through civilised Peru and Chili. Humboldt describes the mysterious hieroglyphs he met with in Brazil, but the great German traveller was in no wise able to explain these weird representations of men and animals, of birds and reptiles. The use of the simple colours we see was very early known to the Americans, the ochres, lamp-black, and lime-white. As the civilisation advances, we find the vegetable colours introduced, as also those from the sea-shells, the art of dyeing being prevalent to some extent.

From the rock-cut hieroglyphics,—artistic in a measure, but utterly deficient in our conventional idea of beauty,—we come to the MS. hieroglyphics of the Mexicans, painted on cotton and on skin, sometimes on the strong paper made from the fibre of the agave or aloe. From these hieroglyphics we obtain a slight knowledge of the country, its traditions, customs, laws, general life, the rulers and their genealogy, but our power of deciphering these documents,—many of which have been reproduced, among other authors by Lord Kingsborough,—is sadly limited. We are able, it is true, to trace the migration of the Aztec race, their history, and

* November 1, 1883.

even obtain a slight insight into their methods of education, but from an artistic point of view the interest of these works is only small. The few relics we possess of this phase of the ancient Mexican civilisation have escaped by a miracle from the wholesale destruction by the Jesuits of all such idolatrous creations; but these relics suffice to show us the culminating point of the art which we have roughly traced from the primitive cave-dwellers; no foreign element can be discovered in the two phases of the early art of America, painting and sculpture. A far more puzzling and intricate problem is afforded by the architectural relics of the past in America.*

THE LAW BUSINESS OF ARCHITECTS.

ARCHITECTURAL ASSOCIATION.

At the second ordinary meeting of this Association for the present session, held on the 23rd ult., at 9, Conduit-street, Regent-street, Mr. Cole A. Adams (President) being in the chair, no fewer than seventy new members were elected.

Professor Kerr delivered a discourse upon "The Law Business of Architects." In choosing that subject, he said, he was quite aware that it was impossible to do more on that occasion than to give the members something like a syllabus of the subject, but, inasmuch as every one knew that, as regarded the practice of architects, success depended largely upon a knowledge of the administration of affairs in connexion with litigation, it was highly desirable that students should become acquainted with the law business of their profession previously to entering upon active work. It must be borne in mind that this was a commercial country, and, business affairs being involved in so many disputes, they could not be too early taught the necessity of a thorough acquaintance with what he called "the law business of architects." He defined litigation to be the process which the State provides for the settlement of disputes; for disputes there must always be, and the perfection of litigation would be that system which would be perfectly simple, inexpensive, and satisfactory to the majority of litigants. He was sorry to say that that language could not be applied, in the opinion of most people, to the English system of litigation. The complaint made against it upon all hands was that it was highly artificial, and the judges themselves, the best authorities on such a subject, always advised every one to avoid actions at law. Without using strong language, they might safely say, then, that litigation as administered in England was not altogether satisfactory. With respect to architects they might say for themselves, with much greater force, that litigation in matters with which they had to deal was most unsatisfactory. The substitute for it was arbitration by experts, which system was much recommended by judges and all well-intentioned law authorities as the natural process for arriving at a settlement of the dispute. Of disputes in which building matters too often became involved it appeared to him that the lawyers always seemed to take an artificial view. In ordinary litigation, there was provision made some years ago for an assessorship in all expert business; but that principle was not carried into effect, or they might see an eminent architect or surveyor assisting a judge on the bench in trying cases affecting building. Why the system had not been carried out he did not know. At the present time it was not attempted, the law in that respect being a dead letter, and they were left to the system of arbitration as the only alternative to litigation.

Now, whenever an architect stepped forward as the administrator of anything like law business, whether as an adjudicator, adviser, or advocate, it was not law that he was dealing with. What he understood was justice and fair play. He (Professor Kerr) did not for a moment say that was not the purpose of the law, but the law arrived at these results by a highly artificial mode. The architect must not try to arrive at it by the ssme mode; he must apply common-sense principles. At the same time, the architect who professed to deal with any such matters must obviously be able to bring to bear a certain amount of the knowledge of the principles of law business and an experience which was only to be acquired in connexion with building matters. He ought to have a judicial mind, a trained intellect, and an acquaintance with the working of the settlement of disputes. But the arbitrators who were most commonly employed in London and the country for all building disputes were surveyors rather than architects. The architect dealt with office work, but the surveyor being by the nature of his profession always engaged in the adjustment of what might be called disputes or doubts, became a trained adjudicator. Out of the system of arbitration, as it had been practised in England, there had arisen a very curious practice, which was known by the name of "splitting the difference." When two parties to a controversy were brought face to face before the adjudicator, human nature instigated each of them to exaggerate his case, and, according to a natural law, the probability was that each party exaggerated his case equally, and justice, therefore, lay midway between the extremes. This was the origin of the practice of "splitting the difference." But when it was found that a gentleman employed as a professional arbitrator split the difference systematically for the sake of trying to please both parties, no one could justify it. The architect, as an intelligent arbitrator, must bend his mind to the work, and ascertain the real facts of the case, giving his decision fearlessly and faithfully. An architect was generally supposed to be a sort of arbitrator between his client and the builder, but this was not the principle of the law. The profession of an architect was so honourably practised as regarded the relations between the client and the builder that the architect, in fact, was the arbitrator and fair dealer between the two. This was the result of the relation, so far as it went; but it was not a legal position, and consequently a new idea had lately been brought forward and put into practice in contracts, viz., the arbitration clause, and its introduction was an admission that the architect was not regarded as an altogether impartial adjudicator. The fair play of the arrangement was perfectly manifest, and the only difficulty was in the appointment of an arbitrator. In the appointment of any arbitrator it was to be observed that it was not enough to select a man who was honest, for honesty would not settle the business. What was wanted was a person who was acquainted with the matter in hand, and who was possessed of a skilled and judicial mind.

The architect when brought into connexion with litigation or with arbitration acted in one of three capacities, either as adviser, advocate, or arbitrator. In building matters, to be an expert was a thing which ought to be entered upon with great caution. It was well known that certain architects were exceedingly bad advisers; they really did not know the particular subject which, nevertheless, they took in hand; and they forgot the responsibility which they incurred by accepting a kind of business in which they had had no experience. The consequence was that when a person was not up to his work advantage would be taken of him, and he might fail to secure those proper results which otherwise he would have obtained. In order to entitle any of those present to assume the position of adviser on delicate matters it was necessary that he should conscientiously feel that he understood the matter, whatever the question might be which was brought before him; for it was not fair to undertake to advise a client upon any special point unless one thoroughly understood all about it. Partisanship in respect of advice was a trap into which a great many architects were likely to fall. When a barrister was retained to argue a case, it made no difference to him upon which side he was engaged; there was nothing wrong in that, it being a part of the system of the law. He would say everything in favour of his client's case, on the principle that there was always a great deal to be said on both sides. He having done his duty, the judge and the jury must do the rest. But if the architect assumed that it was his function merely to accept a retainer to defend so-and-so in such and-such a business, that was a mistaken attitude to assume; it was mistaken ground for an architect to stand upon, very often leading him into unpleasantness and causing him regret. With respect to advocacy by evidence, that was a question upon which a great deal might be said. It was necessary, when an architect assumed the position of an advocate, to be more than sure he understood the subject, and to bring to bear upon the work that skill without which advocacy was a mere sham. He must be not merely conscientious, but must understand how to secure justice in spite of opposition, which might be technical or be mere quibbling, and which might defeat him if he were not a good advocate. There was a practice which prevailed in the profession regarding which he (the speaker) entered his protest, viz., the practice of giving reports which only dealt with one side of the question. The architect thus employed did not want to hear the other side. Being engaged to survey *ex parte*, he made a report accordingly, and by that report he was bound to stand through thick and thin, however far he was proved to be wrong. When a case of that sort came before the law courts, and the architect was proved to be in the wrong, it provoked the remark from the judge that all "these surveyors were all alike." When an architect was called in, he should deliver his opinion in writing, but before doing so he should master all the facts. Affidavits, again, were often called for from surveyors. An affidavit was a statement of facts within the knowledge of the witness, which had to be sworn to, and handed in to a court of justice; therefore it was solemn in its character. How very important it was, then, that a person making an oath in that formal and decided way should be exceedingly careful as to the absolute certainty of all that was contained in such affidavit. Without casting any blame upon the profession, it would be useless for him (Professor Kerr) not to acknowledge that sometimes architects were in the wrong in this respect. Lawyers complained of these affidavits, and stated that they could too readily be obtained on either side, one side swearing that black was white, and the other that white was black. Judges, too, held a similar view unfortunately, and though it was not expressed in such forcible language it was more vexing. This was a pity, but it could be all prevented and the evil cured, if architects, in making affidavits, would bear in mind the necessity of putting in writing only that which they fully understood and knew to be true.

Professor Kerr then proceeded to classify the various subjects which would come sooner or later under the control of architects in the administration of cases of dispute with reference to building matters, either as advisers, advocates, or arbitrators. First, in regard to valuation of property. No matter by what incident, the necessity might arise amongst them for the determination of the value of property. It was perfectly plain to start with that this was a surveyor's question and not an architect's, and when architects were called in as advisers upon any question affecting the valuation of property, they must remember that, however expert they might be in that particular business, it was the work of the auctioneer, who alone knew completely the selling value of the property. At the same time, if the architect understood the business, he was invariably very much deferred to in an inquiry of this sort, showing that the profession, in spite of its critics, was an estimable and honourable one. In compensation work, therefore, they must bear in mind that it was the business of a specialist; but if a client came to them for advice, then their proper course was to become possessed of the knowledge that was required. They must, however, be very careful of being tripped up in cross-examination if they should happen to be called upon to give evidence at a trial; hence the necessity of having special skill in advocacy. If they had to participate in the appointment of an arbitrator, let them see that the man who was chosen had a scientific knowledge of the subject. Turning to dilapidations and fixtures, the settlement of disputes as to these matters was an architect's work, by which he meant the practical architect who was acquainted with all the questions in relation to building. The law of dilapidations was this, that a tenant occupying a house as the leaseholder entered into an obligation to keep the house in repair, to leave it in repair, and to hand it over at the end of his term in a substantial condition. The law of fixtures, on the other hand, was that any work which the tenant did upon or in the house, or anything which he added to the house, the which could not be removed without damaging the house when it was left, must be considered to belong to the owner. In most leases there was a provision that anything additional which the tenant might supply should be kept in repair and handed over with the rest. When any question of

* To be continued.

dilapidations or fixtures was brought before a court of law, it was perfectly astonishing how lawyers reduced everything to mere words. For instance, they had argued that if a mirror was affixed by a screw to the wall it belonged to the tenant, but if it was affixed by a nail it belonged to the landlord! If architects should be called in to advise in this respect, it must be borne in mind that the law was extremely difficult, and they must become thoroughly acquainted with it before they could advise. As a general principle it must be admitted that landlords were grasping; and if they were on the side of the landlords, then "honesty is the best policy," for justice would last longest. If they were advising a tenant they must be thoroughly acquainted with the principles of what they had to deal with, doing their best to secure him fair play. In choosing an arbitrator they should fix upon a man of experience, one who was possessed of an elastic mind, and who would give a proper interpretation to the first principles of law. Passing on to the question of ancient lights the lecturer said that the law in this respect was this. If a window had been in existence for more than twenty years, and had possessed the light from a certain sky-area, that sky-area, as a lighting power over a neighbour's property, belonged to the owner of the window for ever against all the world. But, in order to reduce it to common sense, the phrase "materiality of damage" had been invented, and the person who encroached upon the sky-area was entitled to encroach to any extent which was not material. The word "material" might mean anything that any one pleased. The consequence was that the whole result of a question of light and air turned invariably upon the point whether the damage was material or immaterial, and if it was immaterial it was beneath the dignity of a court of law to take notice of it. If architects were called upon as advisers upon such matters they would find that, although the principle was easy enough, any architect who took upon himself to advise a client, whether a plaintiff or a defendant, ought to know very distinctly what he was about. There was no question that there was great ignorance of the law of the subject, as evidence in courts of law amply showed, to the damage of clients who employed architects in this important question, and found cross-examination had done much harm to their case.

In regard to the Building Act regulations, they were voluminous in their number, but simple in their principles when once understood. The rules which were laid down by Parliament had two objects. In the first place, they were to compel builders of houses to attain a certain minimum of substantiality, — and a miserable minimum it was,—which should prevent houses falling about the ears of their occupants; and, secondly, to prevent the spread of fire. The principles of the Act were not difficult of comprehension, and all architects ought to become acquainted with them so as to acquire sufficient knowledge of the building regulations to be able to advise, in a moderate way, any client who wanted their opinion. If they were in a difficulty, as a rule, they would find district surveyors ready to help them with advice. With respect to disputes as to building regulations, the police-courts, as a tribunal, were exceedingly unsatisfactory. As a rule the magistrates did not wish to have anything to do with Building Act cases, but where else were such questions to be decided? At the same time, the court, if treated respectfully, would give architects justice to the best of its power. Then came the question of arbitration, and they would do well not to have any arbitrator unless he had acquired his experience as a district surveyor. The question for the district surveyor was how to perform his duty and get rid of the responsibility. In reference to this question, the District Surveyors' Association could be appealed to; the Metropolitan Board officials also would always give assistance; they were courteous and intelligent, and would endeavour to settle any question which might arise in an amicable way.

As to party-walls, the law was laid down in the Building Act. The object was to keep lawyers out of disputes. The party-wall was the partnership property of two unwilling accidental partners, and, therefore, inasmuch as it was a principle which could not be got over that the whole of the partnership property belonged to each partner, by this principle of law each owner on the party-wall possessed an undivided moiety of the whole. Consequently, the building owner on one side of the wall dared not touch a brick on his own side of the wall without giving his neighbour three months' notice, at the same time specifying what was intended to be done. Professional men were then engaged upon each side, by whom a third surveyor was appointed; and by the three it was directed what was to be done, and the manner of doing it. They must be very careful in the election of the third surveyor; it was best to have a district surveyor, because he understood all the ins and outs of the subject. Of course, they must be able to state their client's case. The third surveyor would pursue his own course from his own knowledge.

In regard to dangerous structures, the law was this:—The Metropolitan Board was placed in charge of the dangerous structures, and upon receiving a letter,—it might be an anonymous one,—stating that a certain building was, in the opinion of the writer, dangerous to passers by, the house in question was duly entered in the books at the office, and the responsibility was then thrown upon the Board. An order was at once given to the district surveyor, who surveyed and reported upon the condition of the building. If an architect were called in to advise an owner of one of these houses, he should not rashly encounter the district surveyor with opposition, inasmuch as he would then have shifted the responsibility on the shoulders of the owner, and the adviser might be criminally liable if any person were killed by the falling of the building. In the case of a tenant holding a house at the fag end of a long lease it might be very hard to call upon him to pull down and rebuild it for the benefit of the owner, but the architect must do his duty if such was the law.

Turning next to questions of structural failure, the lecturer said that anybody who wished to act as an adviser in this respect must be acquainted with the scientific character of the subject. Hence it was that engineers were much better authorities than architects on such questions. Although architects ought to be and might be highly scientific men, at the same time any one who took up the position of advocate in questions such as the law of support and various other matters of the kind, should thoroughly understand the subject, and advise his client most carefully.

As to the performance of contracts, there was an unfortunate phrase "best quality" used in specifications which had no meaning. This should be borne in mind when the lowest tender was accepted, for how could one blame a man who tried his utmost to avoid losing money by a contract? Contractors, no doubt, suffered great hardship, and he (the speaker) was told that there was scarcely a builder in London who was making money by building contracts. There were such people also as exacting architects; and he urged more generosity on their part in dealing with builders. A contract in the eye of the law could not be compromised in any way; but when they came to appoint an arbitrator under the arbitration clause, they must be extremely careful to choose one of the best and most experienced men who could be found, whose public character for elastic equity would justify the choice.

If called upon to advise in the selection of competition designs, they must be guided by the principle of fair play. There was no contract between competitors and promoters, and that was the unfair element in it. The promoters took very great care that they would establish no contract, and the professional adjudicator ought, in the first place, to insist upon perfectly equitable conditions, or else should have nothing to do with the competition.

Referring to the question of architects' bills, Professor Kerr said that when they had to judge of this matter let them be very careful how they expressed an opinion. In the first place, let them be certain that they knew both sides of the quarrel. Let not one architect go behind the back of another architect and report upon his bill without his knowledge,—a thing, unfortunately, which was sometimes done. If they were to act as advocates against brother architects in respect of bills, let them ask themselves whether they were acting in accordance with the etiquette of the profession? Architects often passed an expression of opinion which they could not justify; they should hear the story of the other side. When they had to appoint an arbitrator he should be guided by strict justice. There was an offence called negligence in law, which was a most incomprehensible and treacherous word as applied to architects, and members of the profession assailed on the question of negligence would find it very difficult to defend themselves. It was advisable to have nothing to do with this question; for there was always a great deal to be said on both sides. Ten to one the architect was in the right; but the lawyers made quite a different story out of nothing, with the object of obtaining a verdict for their clients. For an architect to act as an advocate against any architect in this respect was called "cannibalism," and he warned them against adopting such a course.

In conclusion, upon the subject of etiquette, the lecturer said that architects in practical business were associated with a considerable circle of men in other departments of business. Some of them were professional men of high standing and some of low standing; some were men of highly honourable feeling, while others were the reverse. Some were working people. According to the individuality of a man's mind so would he copy the manners of one or another class with whom he came in contact. So long as they imitated the manners and customs of the best class of people it was very well, but let them not imitate the manners and customs of an inferior class. In trades there was competition for business, which admitted of a man canvassing against another; but, in professions of anything like high standing, the idea of one man canvassing for business against another was utterly out of the question. Amongst tradespeople of a certain class it was competent for one of their number to vilify another, but with architects that ought not to be thought of. He (Professor Kerr) had said a good many severe things in his day, and intended to say many more, but no one had ever heard him speak in disparagement of the profession, which was a noble one, learned and honourable. Year upon year this learning had to be accumulated in order to enable them to give proper attention to multitudinous details. Vitruvius, in the Augustan age, said plainly in his day that the architect ought to possess universal knowledge, and really this was so, for theirs was in every respect a learned profession, dealing with important work of art and science. They were treated as men of accomplished character and were highly honoured in England as belonging to a most illustrious and an historical profession; therefore, when it became a question of etiquette amongst themselves, were they to act as tradesmen? He had heard of rivals cutting each other out in business, and treating each other, as the late Sir Gilbert Scott once said, "with mutual scorn"; but was that the way to act up to their traditions? Their conduct ought to be singularly high-minded and controlled by strict etiquette, bearing in mind, at the same time, that great truth of doing to others as they would be done by. He was very sorry that that practice was not pursued by some amongst them. They must remember also that self-sacrifice paid, and shabby conduct did not; and, finally, upon no account should they take up a case in an unfriendly spirit against a brother.

In the discussion which followed,

The President said that the large attendance of the members had proved the great interest which was taken in the lecture. Professor Kerr's book upon "The English Gentleman's House" was one of the most useful of its kind, and the clearness and precision of that work characterised his excellent address.

Mr. Trubshawe, in proposing a vote of thanks to Professor Kerr, was glad that stress had been laid upon the etiquette of the profession, and of the high estimation in which architects were held, notwithstanding contrary statements which had been published. With reference to hardships experienced by builders in fulfilling their contracts, he could not but think that they were themselves to blame in undertaking to provide work and materials of "best quality" at prices which they knew could not be remunerative, merely for the sake of getting a job, hoping to avoid too close a scrutiny by the architect. In his opinion the building-owner certainly had a right to receive what he bargained for.

Mr. Appleton, in seconding the vote of thanks, urged the necessity of having specialists, who might be resorted to for advice in difficult matters connected with professional practice.

The vote of thanks was carried by acclamation.

Professor Kerr, in reply, thanked the members for the way they had received his address.

Mr. H. Lovegrove requests us to state that Question 4 on Foundations, in the Architectural Association Class of Construction, should read "What is piling? When adopted, and how constructed?"

SOME PICTURE EXHIBITIONS.

There seems to be a remarkable tendency now to the adoption of very large names for picture exhibitions which, even when not small in quantity, are by no means of the first importance in quality. A foreigner, with a knowledge of the names and repute of our leading painters, but not knowing the style and standing of the various places of picture exhibiting, would be rather puzzled, on entering a large set of rooms bearing the name of the "Society of British Artists," to find scarcely a work there, certainly not one of any size or importance, bearing any name of celebrity among British artists. He would be still more puzzled if he entered a much smaller exhibition bearing the still bigger title of the "Nineteenth Century Art Exhibition" (a title, it will be noticed, not even limiting the collection to the representation of the art of our own shores), and found not a single name which has hitherto been prominent or distinguished in the art of the nineteenth century. This "addition," to use Polonius's word, in the case of a collection of small works, many of them bad, by obscure artists, is one of the most ludicrous pieces of "swagger" that we have come across in the world of art, even in these days of much swaggering. It at once makes the whole thing laughable; whereas, if a title more according with the real character of the collection had been adopted, we might readily admit there are some clever and interesting little works to be found there, amid a considerable preponderance of what is indifferent or eccentric. One which we noted is a good architectural interior, "Sta. Maria Maggiore" (221), by Miss Edith Pradez; "Missing," by Mr. W. A. Ingram (226), has tone and feeling, but one would like know what the underwriters would say to the case of a ship abandoned, with all masts and nearly all spars standing. Mr. Edwin Ellis has several small sea-pieces which are spirited, somewhat *too* spirited; contrast them with Mr. Fraser's "Crossing the Bar" (42), a brilliant little work, nearly the *replica* of a larger one we have seen somewhere not long since. "An Orchard," by Mr. A. Wedd (43), is a clever bit of impressionism, and there is much light and air in Mr. Verstraate's "Summer Morning in Flanders" (44). Impressionism is represented a good deal in a kind of aimless way; one artist covers a large canvas with smudges and calls it "A Cloudy Night" (135). This is a very easy school of painting. There are some other pretty things; but to give the collection a title such as that we have alluded to is simply laughing in the face of the public.

The Society of British Artists sticks to its guns with a perseverance which is spirited, and has introduced the system of small illustrations or reminiscences of the leading pictures, in the catalogue. The present exhibition is rather above than below the Suffolk-street average. The best work there is certainly Mr. Hill's nude study, "a dancer" (133). This, if we are not mistaken, is nearly a replica of one that has been in the Royal Academy. In colour it is very good. The figure is rather expressionless, but it is a fine piece of drawing and painting. Mr. Leslie Thomson's "Tweed, Evening" (22) is a landscape of much richness of colour and fine in sentiment. Mr. Grace's "A Clouded Moon" (64) is a good work. Mr. Edwin Ellis is great in tumbling seas, but in his effort to be powerful he is certainly overdoing it, and his waves swing about in a very abnormal and alarming style. This is a pity, because Mr. Ellis has real powers if he would not try to make sensations. Mr J. Fraser is here again powerful with his large work "Crossing the Bay" (567), which, indeed, is a little too much like an echo of Mr. H. Moore; but it is a thing that might have been more centrally hung. "Loiterers" (442), by Mr. Yeend King, looks like a study of the dreary Lancashire sea-shore; it is worth attention. There are other nice landscapes; a good study of horses and donkeys by Mr. J. S. Noble (269); a fine architectural interior, a church at Caudebec (308), by Mr. Wyke Bayliss, and other architectural subjects by the same hand. The centre stand exhibits some clever little terra-cotta studies.

Mr. Henry Cook, a painter who had the misfortune, we believe, to lose the use of his eyes for some years, and has now happily recovered his sight, has opened an exhibition of his works in the upper room at the Egyptian Hall. The oil-paintings include a large portrait of Cardinal Howard, not finished,—an effective work, with very elaborate architectural and decorative surroundings. The part of the collection which interested us most, however, was the screen of water-colours, including some very good and effective sketches in Rome, as well as landscape subjects from different localities.

NOTES ON EARLY AND LATER PLUMBERS AND PLUMBING.

Although the craft of the plumber is a somewhat ancient one, the range of the art was very limited until the present century. It is to the advent and progress of sanitary reform that the plumbing trade owes its present importance and the great extension and diversity of the operations of our present plumbers. Of course, in speaking thus, we have in our mind efficient plumbing, for there are a large body of jobbing hands who call themselves plumbers whose workmanship and the materials they use are of the most worthless and dangerous character. As early as the 38 Edward III., 1365, we have in the Ordinance of the old City Guild of the plumbers some excellent regulations regarding the trade, the duties of the workmen, and the character of the workmanship they were expected to perform. Of course the old spirit of exclusiveness which existed in connexion with the trade guilds down to nearly our own time was rampant in the fourteenth century, for no one was allowed to meddle with operations touching the trades in London unless he was what was called free of the City, nor was he to take a house or apprentices. Bnt, when once made free of the City, and when he could show "by assent of the best and most skilled men in the same trade, testifying that he knows how well and lawfully to work, and to do his work, that so the said trade may not be scandalised, or the commonality damaged and deceived by folks who do not know their trade," — then, and not till then, was the plumber allowed to carry on his trade. The old system of seven years' servitude was insisted upon in regard to an apprentice, and at the end of his term the master was to make him take up his freedom, according to the usage of the City.

Although the old City guilds of trade have been for long years only nominal ones, and their places supplied by the modern trade unions, no reason exists why a supervision should not be exercised over the turning out of work and the quality of the materials. No trade society has a word to say about the bad work turned out constantly by certain employers, and the workmen themselves for obvious reasons will not speak. It rests, then, only with respectable and conscientious employers to execute good work, though in regard to building where there is a responsible architect, care will be taken that it will be as specified. District and parish surveyors may keep a sharp eye on badly-built walls and house drainage, but it often happens that bad plumbing escapes attention. List to this fourteenth-century ordinance, which shows that our ancestors were in some matters much in advance of us:—"That every one of the trade shall do his work well and lawfully, and shall use lawful weights, as well in selling as in buying, without any deceit or evil intent against any one, and that for working a clove of lead for gutters or for roofs of houses, he shall take one halfpenny, and for working a clove for furnaces, *tappetroghes*, belfries, and conduit-pipes one penny, and for the waste of a wey of lead when newly molten [he shall have an allowance] two cloves as has been the usage heretofore." The allowance of two cloves was perhaps about 14 lb. in 180 lb., but the weight of clove and way was varying. Folks who stole lead and stripped roofs in the fourteenth century were not unknown, and the practice is still very common. Stealing or taking a "pigeon" is a modern slang term for the act of dishonesty, making away with and selling a quantity of lead which has been stripped from a building. One of the ordinances of the plumbers of 1365 says,—"That no one of the said trade shall buy stripped lead of the assistants to tilers, laggers, or masons, or of women who cannot find warranty for the same. And if any one shall do so, himself, or by his servants, or if any one of them shall be found stealing lead, tin, or nails in the place where he works, he shall be ousted from the trade for ever, at the will and ordinance of the good folks of such trade." What would one of our dishonest building workmen of the present day think if such a rule were enforced against him for a theft committed for drink, for lead unfortunately has been too often stolen and sold by dishonest workmen for drinking purposes alone? The offence of ousting another from his work undertaken or begun, or taking away his customers, or his employers to his damage, whether by enticement through carpenters, masons, tilers, or other persons, was visited by a fine. The violation of any of the ordinances of the plumbers entailed for the first offence forty pence, for the second half a mark, for the third twenty shillings, and for the fourth ten pounds, or else a foreswearing of the trade. The money value of the fines was pretty high at the period mentioned.

In the civic records for 1371 there is complaint as to a smelting furnace leased by plumbers in Eastcheap with the decision given thereon by the mayor and alderman who were applied to. The complaint speaks of "The great damage and peril of death of all who shall smell the smoke from such smelting"; but the defendants asked that they might be allowed to follow their trade, as they were accustomed to do for forty years, contending that the place where the smelting was done was not so noxious as was alleged. The civic dignatories allowed the smelting of the lead to be carried on "provided that the shaft of the said furnace should be heightened, for the benefit of the neighbours there." If this was not an early effort at smoke abatement, it was at least a movement in that direction.

The plumbers of the Middle Ages were pretty well accustomed to covering roofs and other surfaces in connexion with ecclesiastical buildings, and supplying and laying down small conduit-pipes for the supply of water. As early as 1278 we have mention of the conduit of Chepe, which Stow says was build in 1285. In an ancient and curious book in possession of the Corporation of Dublin, called the "Domesday Boke of Dyvelyn City," there is a memorandum in Latin to the effect "That on the morrow of St. Leonard, in the thirty-ninth year of King Henry (7th Nov., 1239), the Prior and Convent of the Holy Trinity, Dublin, received the water from the vase (basin or reservoir) of the citizens of the said city of Dublin; that is the vase situated opposite the Tholsel of the said city, and near the gate of the Holy Trinity. To be held by them for three next following years from the said day." From this and other entries it appears that there were basins or reservoirs for the reception of the water in various parts of the city from which the inhabitants could have pipes laid on to supply their houses. In 1287 there is a grant by the Mayor of Dublin to Sir Richard de Exeter, "a certain portion of water, that is of a pipe equal to the size of a goose-quill, and also to their fellow-citizen Henry le Marshall, for the convenience of himself and his neighbours dwelling near him, that he should be allowed, at his own expense, to attach a pipe to theirs near the corner, which led to Kilmaholmok-street, to conduct the water to his house, near the Church of the Holy Trinity, into his cistern or reservoir, but the pipe not to exceed the grossness of a goose-quill." In 1329 and 1342 we have other grants to citizens, of a right to affix pipes of "the size of a goose-quill" to cisterns in certain streets for the conveyance of water to their houses. The minute particularisation that the pipe should not exceed the size of a goose-quill goes strongly to prove that the water was always flowing and the value put on a constant supply. From an early date particular care was taken in London that the water of the great conduit in Chepe should not be wasted. William Hardy, the keeper of this conduit, had to appear before the Mayor and Aldermen in 1310, to make oath "that he will well and trustily, with the greatest diligence, cause the conduit in Chepe to be kept, so that neither brewers nor fishmongers shall waste nor sell the water thereof to any one by night or day on peril of losing his freedom, &c." From this time down to a late date there are frequent

entries in the Civic records relating to the great conduit in the Chepe. In 1388 leave was granted by the Mayor and Alderman to certain inhabitants in Fleet-street, to erect a penthouse over the aqueduct passing there, as there were frequent inundations through the breakages of pipes, to the damage of the houses. This aqueduct of London, so called, was the system of water-pipes conveying water from Tyburn to the great conduit in Chepe. It would appear that these pipes were partly laid above ground, and exposed to the weather and accident. The water was conveyed by pipes from Tyburn to St. James's Hill (now Constitution Hill), thence to the mews near Charing Cross, and thence through the Strand and Fleet-street to Chepe. In 1415 we find an ordinance as to the use of the pipes in connexion with the great conduit. The Mayor and Aldermen were given to understand that the brewers and others near to the conduit, who rented the fountains and the great upper pipe, were drawing their water for their brewing out of the pipes that ran below the conduit, "whereby the common people are oftentimes greatly impeded." It was ordered that the brewers and other persons should not in future draw any water from the small pipes on pain of a stated penalty. As late as 1754 we find the Corporation of London exercising power over the plumbers in the City, and passing a number of by-laws for the regulation of the craft or guild. The old cordon of exclusiveness was, however, broken through before that time by a new race of employers, building, and other workmen.

Though small leaden pipes were used at an early date for conveying water into houses from public cisterns or reservoirs, the increasing growth of London and other cities soon necessitated large main pipes being laid down. The water mains that were first laid in various directions through London were of timber, lengths of roughly-squared elm trees, bored through, similar to the old wooden pump shafts, one end of which was tapered for some inches, to enable it to be driven into the next length. These timber pipes were soon found to decay, being attacked by worms, and, moreover, they gave a bad taste to the water. The timber piping was gradually replaced in London and other British cities by metal mains, and these again by some of larger dimensions. Our plumbers did not profit by the laying of metal mains directly, but after a short time they began to profit by the supplying and fixing of several fittings in connexion with a better water supply to our domestic dwellings. Plumbing and glazing in this country has been often combined, though the painters of our days are generally the glaziers, so far as putting in glass to wooden sashes is concerned. Ecclesiastical metal sash-work glazing in the past has been claimed by the plumbers as their legitimate work, but all our trades have of late years been undergoing a state of transition by the subdivision of labour. Glazing in lead quarries was the general method at an early period, and we have among us some architects who adopt this method for its picturesque effect, notwithstanding the advantages that accompany large squares and clear glass. In respect to glass-painting, or making a painted window, it is well known that many pieces of glass are fixed together in a leaden framework. Glazing with putty has long been a general practice, though lead is still used for fixing glass. Where a large quantity of glazing has to be done for new houses, builders have long been in the habit of sending their sash-work to be glazed at those establishments which supply glaziers', painters', and paper-hangers' materials.

About the opening of the present century the plumbers' work made up but a short list of items, and consisted chiefly of gutters, sash-weights (leaden), backs of sinks, coppers, &c., cramping with lead, solder, milled lead for roof-coverings, hips, flashings, linings, &c., and pipings. Bath, lavatory, water-closet, and other kindred plumbing more particularly belongs to a later period in the present century, speaking in a general way, although there are exceptions. There is, of course, a considerable amount of brass, copper, zinc, and other metal work in connexion with the work of our present day plumbers. There is scarcely a branch of the building trade which needs more careful inspection than plumbing work. In this branch of the building trade, perhaps more than any others, there is an enormous amount of scamped work perpetrated. The facilities are so numerous for deception that unfortunately many unprincipled employers and workmen avail themselves of them. The certain results of such vile practices are not only continual annoyance and expense in many households, but illness and often death. Bad drainage will generally be found in connexion with bad plumbing, and the house drainage of a very large number of the low class of speculative dwellings in our suburban districts is of a most rascally kind, though our parish surveyors or their deputies are supposed to inspect the construction of the house-drains and see that they are properly connected with the street sewers.

NOTES FROM BIRMINGHAM.

ANOTHER excellent example of the public spirit which animates our wealthy citizens has just been shown by the offer by Mr. John Jaffray, J.P., one of the proprietors of the *Birmingham Daily Post*, of a new suburban hospital, to be built on freehold land at Erdington, as an adjunct to the general hospital, for chronic cases. As this establishment will, when in operation, extend and enlarge the scope of that institution's usefulness, there will be a corresponding expenditure involved, and as that is best met by an endowment fund, other citizens have been invited to contribute to form such a fund, and already nine contributions of 1,000*l.* each have been promised towards it.

The suspension of payment by Mr. Alfred Humpage, one of our largest building speculators, has been the immediate cause of a very extraordinary proceeding on the part of the Gas Committee of the Corporation. When the Corporation took over the business of the old Staffordshire Gas Company, they inherited the branch supplying gas-pipes and fittings, which have on many occasions since been the subject of much heart-burning amongst the gas-fitting trade of the town. But they also inherited their Act of Parliament, one clause of which gave them the same powers of distraint for debts due to them which an ordinary landlord possesses. Mr. Humpage is building a large block of buildings called Lincoln's Inn, the contract for which was taken by the Messrs. Horsley Bros., and also the new theatre which he undertook to build for Mr. Melville. In both of these buildings the Gas Committee contracted directly with Mr. Humpage to supply and fix the gas-pipes, which has been done but not paid for. On the announcement of Mr. Humpage's failure, the Gas Committee put an execution into each premises and seized every portable thing belonging to the contractors,—scaffolding, barrows, planks, grates, &c.,—and advertised the same for sale. Mr. Melville paid the claim on the theatre, but Messrs. Horsley obtained an injunction and stopped the sale of their plant. This action of the Gas Committee has provoked much adverse comment in the town, on account of the apparent inability of the committee to see the difference between seizing the goods of their debtor and those of third parties, fellow contractors with themselves in the same building, and the inequity of the original clause was felt by Lord Redesdale to be so great when the Consolidation Bill was recently before the House of Lords, that he caused it to be struck out entirely, so that the power will cease at the end of the present year. The moral of all this is, that if the Corporation become traders they must be content to accept the risks of traders.

Tenders have been received for building the new chapel, &c., for the Old Meeting congregation, according to the premiated design, which seem to prove the said design to be so costly that the architect has instructions to reduce the same by fully one-third. The lowest tender is understood to be over 20,000*l.*

A new step in co-operation for production has just been taken up by Messrs. Tangye, Limited, of Smethwick, the celebrated engineers and machinists. At their first annual meeting, recently held, Mr. Richard Tangye announced that the firm were about to introduce an important arrangement with their workpeople. In order to give certain old and valued foremen and other servants a direct interest in the business, without the rights and privileges of shareholders, they have decided to issue to each a certificate of indebtedness or bond, which sets forth that the bearer is entitled to interest upon it at the same rate as the dividend declared by the Company upon its ordinary shares, and in case the bearer dies before the end of the year for which the bond is good, his family is entitled to the value of the bond. The firm reserve to themselves the right to pay the value of the bond at once in cash, or for the school fees of the children, or for the rent. The ordinary bond will be for 50*l.*, and must be renewed annually, and the recipients must belong to a provident society. This firm has already provided a large and commodious dining-room, with special facilities for providing cheap and wholesome meals therein, and in which lectures are given at the expense of the firm twice in each week at least. In addition, medical attendance is found for the workpeople and their families on nominal terms, besides which there are Sunday schools and science classes, provident societies and trust funds, and, greatest boon of all, regular and generally constant employment. If a man leaves Tangye's it is seldom from slackness of work.

The remarkably sudden death of Mr. J. H. Chamberlain, architect, has given a great shock to this community. All differences of opinion,—and there were many,—respecting the man and his work have been resolved into one long stream of condolences and regrets. At a public meeting called by the Mayor, and attended by the President of the Board of Trade,—who is no relative of the deceased,—a resolution was adopted to open a subscription list to commemorate the public services of the late Mr. Chamberlain, and to appoint a committee to consider the form the memorial should take, and report to a future meeting, and a sum of 1,253*l.* was subscribed in the room for that purpose. The Messrs. Tangye have intimated their intention to present to the Art Gallery of the town a picture they have recently purchased in the local exhibition for a large sum, Mr. Albert Moore's "Dreamers," a work much admired by the late Mr. Chamberlain, as a memorial of the deceased. At the last meeting of the School Board, Mr. Kenrick, one of the members, announced that he had determined to present the Board with 1,000*l.* wherewith to found a scholarship in the Board Schools to deceased's memory.

The School Board is awaking to the necessity of teaching youth something more than merely literary knowledge, and has discovered that boys and girls of fourteen, although they may have passed the sixth standard, are still very incapable of earning their own living by reason of their not having received any technical instruction in the arts. To remedy this state of things the chairman of the Board, Mr. George Dixon, has moved, and Mr. T. C. Barnes seconded, the resolution, "That the Education Committee be authorised to consider the question of the advisability of establishing a technical school in connexion with the Board, and report thereon." The resolution was adopted. We may now expect that boys will be taught the use of tools.

A new Roman Catholic church is about to be built in Alcester-street, by Messrs. Barker & Son, of Handsworth, from designs by a London architect, and a new Established church is about to be built in Gillott-road, by Messrs. Sapcote & Sons, from designs by Mr. Chatwin. The same architect is also about to extend and restore the Church of St. George, Edgbaston, and has also in hand the extension and restoration of Aston parish church. Tenders have been received for building the new school of art, from designs by Messrs. Martin & Chamberlain, the lowest of which is that of Messrs. Sapcote & Sons, a little over 17,000*l.*

The Midland Railway Company are about to make a most important change in their system here. The West Suburban Line, built some years ago as a single line, runs from Granville-street through the lower part of Edgbaston, Selly Oak, and Northfield, on to King's Norton, where it joins the main line from Worcester and the south. This has always been a purely local line, having no Sunday traffic. The Midland are now proceeding to reconstruct this road and laying down a double line of rails, and are about to connect it up to New-street Station by a tunnel from Granville-street, between which station and New-street they have acquired some six to seven acres of land on which stood some 700 houses of the lowest class, all of which are being cleared away to form a goods station. The work is being executed by the Messrs. Firbank, who have over 700 men engaged on the work, which is expected to be completed in two years. The reconstructed line will then be used as a main line from the

south into Birmingham, leaving the present main line through Camp Hill as a through line for goods and a local line for passenger traffic.

The District Drainage Board some time ago acquired a large additional area of land at Tyburn, some four miles out of Birmingham towards Lichfield, for the purposes of a sewage farm, and have been engaged laying this land out, and have built extensive and commodious farm buildings and cattle-sheds, labourers' cottages and superintendent's house. The cost of these has been about 15,000*l.*, and the contract was taken by Messrs. Horsley Bros., of Birmingham, who have executed their work in a very commendable style. The drawings were prepared in the office of the Birmingham Borough Surveyor. E. G.

THE COMPLETION OF THE ARLBERG TUNNEL.

Although the official opening of the Arlberg Tunnel took place on November the 19th, the great work may be said to have been virtually accomplished when, on November the 13th, through communication was established by boring. It speaks well for the science of tunnelling under great difficulties that the elevation and height of the new tunnel were found to have been hit off exactly. There has only been a slight error in calculating the length of the tunnel, which was found to be shorter by 7 mètres than estimated. Strangely enough, a similar miscalculation was made in the cases of the Mont Cenis and St. Gotthard tunnels. The great undertaking of the Arlberg, from the time tunnelling operations (by hand) were commenced, on the east side on June 24, on the west side on June 25, 1880, has occupied three years and 142 days. Machine boring was begun just three years ago, in November, 1880. The rapidity of construction has been greatly facilitated by the cordial co-operation of the two contractors, Signor Ceconi (for the eastern side) and Herren Gebrüder Lapp (for the western side). Both firms of contractors worked on their own account, but greatly assisted each other by mutual support, and the only emulation between them appears to have been who was to do the greatest amount of work. They employed different systems of boring. Ceconi used the so-called "percussion" boring system, employing Feraux machines; Lapp Brothers the "rotation" boring system, with Brandt machines. The former system was used in the boring of the St. Gotthard Tunnel, whilst the latter was tried for the first time. From the results it appears that percussion in boring is to be preferred, it having been possible with its aid to perform a larger amount of tunnelling on the side on which it was employed.

The present road over the Arlberg, which forms the frontier between Austria and Switzerland, is 5,400 ft. above the sea-level. The tunnel is much lower down, the opening on the Tyrol side (St. Anton) being 4,030 ft., that on the Swiss side (Langen) 3,770 ft. above the sea. The total length of the great tunnel is nearly 6¼ miles (10,270 mètres); the Mont Cenis Tunnel being 7⅞ miles (12,330 mètres), and the St. Gotthard Tunnel 9¼ miles (14,912 mètres) in length. The tunnel runs for the most part in mica schist. The method of tunnelling employed differed from that practised in making the St. Gotthard Tunnel. Instead of piercing the upper part of the passage first, and working down, the engineers of the Arlberg Tunnel preferred to begin at the base and work upwards. The boring-machines were worked by compressed air pumped into the tunnel by turbines stationed at the two extremities. The usual mode of operation was pursued. When a sufficient number of holes had been drilled, they were charged with dynamite and exploded; the *débris* was then removed by trucks following closely on the track of the boring-machines, and in a few minutes the drilling was going on as rapidly as before. The drift thus made was 2·75 mètres wide and 2·5 mètres high. While one drift was being driven below, another, to which access was gained by vertical shafts, was being driven above. This part of the work had necessarily to be done by hand, and the *débris* shunted through openings, made for the purpose, into a lower gallery. It is stated that at no time was there any difficulty experienced with regard to ventilation, the heating rarely exceeding 14° C. (58° Fahr.). At the opening ceremony, the ventilation was described as "perfect," a statement which contrasts strangely with the facts experienced in tunnels at home. What the atmosphere will be with the traffic at full swing, experience alone will show.

The contractors have throughout well kept up to the time of their agreement, and the tunnel has been completed long before the time stipulated. In fact, the tunnel itself has been finished five months before the completion of the approaches. The total cost of the Arlberg Tunnel and Railway has been 35,000,000 florins. Nearly half of this sum has been expended on the tunnel itself, the approach lines on the east (from Landeck to St. Anton) and west (from Pludenz to Langen) sides costing 12,000,000 florins, and the so-called Upper Inn Railway (from Innsbruck to Landeck) the remainder.

The quickness with which the work has been completed is a performance without an equal in the history of tunnelling. The figures below show that, whilst the average daily progress in the St. Gotthard Tunnel was 5·5 mètres, in the Arlberg Tunnel it rose to 9·2 mètres; in the latter case it is consequently 67 per cent. greater. But it should be taken into account that the greater the length of the tunnel, the greater the difficulties of tunnelling. Supposing the same progress were made with the proposed Simplon Tunnel (to be 12½ miles long) as has been obtained in the Arlberg Tunnel, it would take six years to complete it, whilst the St. Gotthard Tunnel (9¼ miles long) took seven years and 149 days up to the day on which through communion was established. The following figures show the comparative amount of work done in the three tunnels of the Mont Cenis, St. Gotthard, and Arlberg respectively:—

	Mont Cenis.* Mètres.	St. Gotthard.† Mètres.	Arlberg.‡ Mètres.
1st month.....	22·93	42·4	74·9
2nd ,, ...	54·99	65·0	136·6
3rd ,, ...	85·16	67·7	135·1
4th ,, ...	60·82	98·4	168·6
5th ,, ...	73·60	155·7	170·0
6th ,, ...	72·60	110·4	192·2
7th ,, ...	79·45	130·0	238·4
8th ,, ...	67·95	126·1	217·8
9th ,, ...	70·60	148·2	243·8
10th ,, ...	78·90	123·7	228·8
11th ,, ...	78·35	121·1	227·4
12th ,, ...	82·75	145·3	254·4
13th ,, ...	68·15	110·3	237·0
14th ,, ...	83·35	126·8	262·6
15th ,, ...	84 00	133·4	309·2
16th ,, ...	99·45	157·0	297·3
17th ,, ...	67·85	179·8	308·3
18th ,, ...	75·70	159·4	292·4
19th ,, ...	107·60	186·5	308·0
20th ,, ...	87·05	168·3	290·5
21st ,, ...	102·15	172·9	294·5
22nd ,, ...	112·55	194·0	320·4
23rd ,, ...	99·15	184·1	246·8
24th ,, ...	100·95	178·8	304·4
25th ,, ...	103·75	225·6	265·1
26th ,, ...	112·25	216·5	274·6
27th ,, ...	121·40	214·3	341·2
28th ,, ...	112·95	240·6	377·1
29th ,, ...	153·95	215·7	351·7
30th ,, ...	114·65	229·1	379·2
31st ,, ...	90·15	243·8	332·6
32nd ,, ...	85·65	157·3	—
33rd ,, ...	88·40	129·3	—

It need scarcely be added that the Arlberg Railway will form an important outlet for Austrian produce, and cannot fail to increase the trade of the Austrian Empire with Switzerland and France. But it is not to be expected that, while the present highly protective tariff of Austria is maintained, much benefit will accrue to the two countries named from greater facilities of traffic. Already, therefore, Swiss papers express a fear that, after all, and for this reason, the Arlberg Railway may not realise the expectations of its promoters, and they are urging the Swiss Federal Council to propose to the Austro-Hungarian Government a revision, in a liberal sense, of the existing commercial relations between the two countries. A very little experience will show whether there exist grounds for those apprehensions.

The Longfellow Memorial.—Many of our readers will be glad to hear that the bust of the poet Longfellow, intrusted to Mr. Brock, is approaching completion. It has come well out of the mould, and is far advanced in the marble. It promises to be a very fine work. It is expected that it will be unveiled in Westminster Abbey on the 27th of February, 1884, the anniversary of the poet's birth.

* Dec., 1862. † March, 1873. ‡ Jan., 1881.

THE ORACLE OF DODONA.

On the site of the ancient temple of Zeus, at Dodona, in Epirus, celebrated as the seat of the oldest oracle of Greece, a series of excavations have recently been commenced by M. Constantine Carapanos, and have already been attended with gratifying results. Remains of the foundations have been discovered sufficient to enable the excavators to identify the exact position and ground-plan of the Temple. Amongst the ruins there have been found a considerable number of leaden tablets on which are written questions which were put to the oracle in ancient times. Such questions were naturally left behind by the questioners while they would, of course, take the answers with them on their departure home. One of the lead plates, however, is exceptional in that it has the question on one side and the reply of the oracle on the other. The inquirer is a certain Antiochus, and he asks to what deity he is to address his prayers in order that the members of his family may recover from maladies that had long afflicted them. The answer of the oracle is in the usual indirect and ambiguous style. Antiochus is told that he must go to the city of Hermione and worship the goddess who will meet him from the opposite island of Idrea, which may, perhaps, be interpreted as a roundabout way of recommending the invalids to try the effects of a sojourn at the seaside. This remarkable tablet has been sent to the Academy of Inscriptions and Fine Arts at Paris.

THE DWELLINGS OF THE POOR IN LIVERPOOL.

On Monday last the Insanitary Property Committee of the Liverpool Corporation met in the Municipal Buildings, under the presidency of Alderman A. B. Forwood.

The Town Clerk (Mr. G. J. Atkinson) reported on the various statutes relating to the subject of insanitary property and the dwellings of the poor. Having regard to the importance of retaining the powers of the local Acts, the Town Clerk recommends to the consideration of the committee the desirability of extending the existing borrowing powers. The Public Health Act, 1875, section 303, enables the Local Government Board, by provisional order, to alter or amend any sanitary Act, and the Town Clerk is of opinion that this enactment will cover an extension of the borrowing powers contained in the Act of 1864. There does not appear to be any power to compel an owner to make structural alterations in a house without the local authority incurring the liability to purchase it, unless the case comes within the limited scope of the Public Health Act, 1875.

Before proceeding to discuss the Town Clerk's report, the committee considered the report of the Insanitary Sub-Committee in regard to property inspected since the last meeting. The committee resolved to acquire various properties, particularly at the south end of the town, for the purpose of widening streets; and in regard to one street, Mr. Stephens proposed that some property should be acquired in order to make a transverse street or streets, which was carried.

The Town Clerk's report was then discussed, and the conclusion arrived at generally with respect to it was that, taken as a whole, the powers of the local authority, though extending over a number of public and local Acts of Parliament, were limited to the purchase of insanitary property, without any adequate power of compelling an owner to structurally alter, though by the operation of the Improvement Act of 1882 the Corporation were empowered to deal with courts and alleys to a much greater extent than they had been hitherto,—a street less than 40 ft. wide being, in the opinion of the Town Clerk, a court or alley. Insanitary houses fronting the street in streets beyond that breadth could not be dealt with except by purchase.

Mr. A. B. Forwood then submitted the resolution of which he had given notice,—namely, that Parliament be applied to for powers to extend the borrowing powers of the Corporation to the extent of 250,000*l.* It appearing from the treasurer's report that the amount remaining unexpended for insanitary property was about 80,000*l.*, Mr. Forwood explained that this amount would, in his judgment, be quite inadequate, and that it was necessary they

should give notice for a provisional order to extend their powers by the next Council meeting, otherwise they might lose a whole year in carrying on the work of the committee.

Mr. Stephens seconded the resolution.

Mr. J. B. Smith opposed the resolution, remarking that nothing that he had seen had transpired during the last few years to warrant any great expenditure on insanitary property.

After some further discussion, it was eventually agreed that the amount for which powers to borrow should be sought should be reduced from 250,000*l.* to 200,000*l.*, and in this modified form Mr. Forwood's resolution was passed, it being understood at the same time that it did not necessarily follow that the whole of the 200,000*l.* was to be expended.

THE HOUSING OF THE POOR.

EARL GREY, in a letter to the *Times*, discusses the many difficulties which beset the efforts of social reformers and legislators to bring about an appreciable and speedy improvement in the dwellings of the poor. He suggests that the principle of the law relating to common lodging-houses, as laid down by the Act of 1851 and the Public Health Act of 1875, should be extended to houses of the kind usually occupied by working men. This, however, he says could not be done by simply enacting that these last should come under the regulations now in force with regard to lodging-houses.

"There is too much difference between the two classes of houses, and those let to working men are far too numerous to admit of the same regulations being applied to them as to common lodging-houses. But what I regard as the really important principle of the law with regard to the latter is that it makes the persons who let lodgings in these houses responsible for preventing them from being used in a manner injurious to health or decency, and this principle might, as it seems to me, be applied with equal advantage to houses let to working men. For this purpose I would enact that the owners of all houses or rooms let by the month or year should be held responsible for their condition, and should be made liable to a fine for every room they had let which should be proved to have been occupied in a manner prejudicial to health or decency, whether the evil arose from defects in the building or from overcrowding and neglect of cleanliness by the tenants. For the purposes of this law the immediate lessors to the actual occupants should be considered the owners. . . . . It may, perhaps, be thought hard that the owner of a house should be fined because his tenant had crammed too many people into it or kept it in a filthy state; but it must be remembered that this regulation is only intended to apply to houses or rooms let by the week or month, and that the landlord has complete control over tenants holding for so short a term, since, if they refuse to occupy their rooms properly, he can speedily get rid of them. The control he thus possesses it is only just to the public that he should be compelled to exercise."

Earl Grey further proposes that it should be made part of the duty of the sanitary authorities to see that the law is duly executed, and that the fines recoverable should go in aid of the rates.

Under the title of "Labourers' and Artisans' Dwellings," the Right Hon. Joseph Chamberlain has contributed an article to the *Fortnightly Review* for December. The following are some of his conclusions:—

"1. The law should make it an offence, punishable by heavy fine, to own property in a state unfit for human habitation. The law already punishes the retail tradesman who exposes diseased meat for sale, and it is a much more serious offence to make a profit out of conditions which are absolutely incompatible with health and morality.

2. In every case in which the local authority acquires property under these conditions, the arbitrator should be empowered to deduct from the ascertained value such sum as he thinks fit by way of fine for the misuse of the property and the offence committed in allowing it to be the cause of disease and crime.

3. Local authorities should have power, subject only to appeal to the High Court, to close such property, or to make at the expense of the owner such alterations or repairs as may be ordered by the sanitary officer, without being compelled to acquire it.

4. Local authorities should be further empowered to acquire any lands and buildings for the purpose of a scheme under the Artisans' Dwellings Acts, at the fair market value of the same, to be settled by an arbitrator appointed for the purpose, and instructed to give in every case the value which a willing seller would obtain in the open market from a private purchaser, with no allowance for prospective value or compulsory sale.

5. The valuation should be made in every case by an official arbitrator, and no appeal should be allowed from his decision.

6. The scheme of improvement should include any surrounding property which will be benefited by the reconstruction of the unhealthy area, and the confirming order should authorise a rate to be levied on the owners of such adjacent property, fairly representing the appreciation of their holdings by the proposed improvement. The principle of this proposal has always been adopted in the case of town improvements in the United States, and it has even found its way into English legislation. The Artisans' Dwellings Act, 1882, provides that when, in the opinion of the arbitrator, the demolition of the property dealt with adds to the value of other property belonging to the same owner, the amount of such increased value may be apportioned and levied as an improvement rate on lands, &c., affected; and a similar provision has been inserted in a Provisional Order, 1879, obtained by the Corporation of Liverpool. All that is now required is to extend this principle to all lands benefited, whether belonging to the same owner or not.

7. The cost of any scheme for the reconstruction of an unhealthy area should be levied on all owners of property, including long leaseholders, within a certain district to be determined by the scheme. The promoters would, in fact, in every case specify a contributory district, and the official sent to conduct an inquiry into the scheme would decide whether or not it had been rightly defined. The contributory district might be, in London, the whole metropolis, or, in the provinces, the whole borough; but if the improvement were essentially local in its character, and likely to be to the immediate advantage of a more limited district, the cost might be thrown entirely on the owners within such district."

SEWER VENTILATION.

AT a recent meeting of the Chelsea Vestry. Mr. G. H. Stayton, the surveyor, read letters from Mr. C. R. Jesper, agent to the patentees of the "Hygienic Sewer Furnace," and Mr. G. F. Harrington, patentee of a system of sewer ventilation which has been tried at Ryde, I.W. Accompanying these letters was the following report by Mr. Stayton upon the two systems, and upon sewer ventilation generally:—

"*The Furnace System.*—The proprietors of the patent hygienic sewer furnace claim that the principle of applying heat as an extracting power is a sound one, and that it can be best applied by means of their patent gas furnaces fixed in suitable chambers attached to ordinary sewer ventilating-shafts or manholes. It is assumed that the furnaces act in assisting the natural diffusion of sewer gases, and in destroying organic germs before they are discharged into the atmosphere. It is stated that with a consumption of 7 to 10 cubic feet per hour a temperature of 600 deg. to 700 deg. is maintained within the furnace, which creates a constant gentle current from the sewer, and the experiment at Withington shows that fever germs are destroyed in their passage through the furnace. The price of a furnace suitable for pipe sewers is 12*l.* (exclusive of fixing), and the consumption of gas would probably cost 13*l.* per annum. It is not suggested that the furnaces should be generally fixed, but only at those points in a sewer system where accumulations of foul air take place. I am unable to say whether the effect of so high a temperature near the surface of a street is found to be objectionable, and the possible danger of explosion, which might be caused by gas escaping into a sewer from a defective main or service pipe, should not be overlooked.

Mr. Harrington's Patent.—Before describing the system, I would venture to remind the Vestry that it has reference to a method of sewer ventilation patented by the Mayor of Ryde, to which the attention of the President of the Local Government Board was called in the House of Commons in August last. From the information which Mr. Harrington has supplied, and from a report of the borough engineer of Ryde, I learn that the system necessitates the erection of tall shafts communicating with a sewer. The 'in-draught' shaft is placed in the centre of the section to be ventilated, and is fitted with a patent lobster-back revolving cowl at the top, which cowl is so designed that a 'wind-force' is exerted in the sewer with a current about 50 per cent. greater than the wind itself, and by which the sewer gas is driven out through the 'up-cast' shafts into the open air at a height of upwards of 20 ft. from the street level. The sectional area of the shafts is proportionate to the size of the sewer to be ventilated. Mr. Harrington claims to have successfully ventilated a pipe-sewer in Arthur-street, Ryde, and to have removed a very serious cause of complaint on the part of the occupants of the seventy-six houses draining into it; and if the system could be as satisfactorily applied in Chelsea, it would undoubtedly be a means of promoting purer air in the streets and of minimising existing dangers from exposure to sewer gas from sewers and house-drains. As I have not had an opportunity of inspecting the operation of the system I naturally feel reluctant in recommending its adoption, but, at the same time, I submit that the result of the experiments appear to justify a consideration of Mr. Harrington's proposal.

Sewer Ventilation generally.—In offering a few remarks upon the general question of sewer ventilation, I venture to take the opportunity to record a strong personal conviction that sanitary authorities ought to adopt all possible means in endeavouring to improve the present system of ventilating sewers. The 'open-grating' system has not only become a nuisance, but is injurious to health, and is thereby at variance with the provisions contained in the 71st and 72nd sections of the Metropolis Local Management Act of 1855. As I have stated in previous reports, the Vestry in ordering open gratings to be fixed in the streets have adopted the best known method of sewer ventilation, and however strongly such method may be open to condemnation, it would (in the absence of a more effective system) be highly reprehensible to adopt the rough-and-ready mode of closing the gratings in the streets, and so driving the sewer gas into the adjacent dwellings. The Metropolitan Board of Works and the leading sanitary authorities throughout the country have given the question great consideration, and considerable outlays have been incurred upon various systems, such as forming connexions to factory chimney-stacks, the erection of shafts with coke furnaces, fixing charcoal-baskets in the shafts, fixing open stack-pipes some 20 ft. or 30 ft. in height, the use of disinfectants, flushing, a patent cowl system, the isolation of sections of a sewer system by trapping and shaft ventilation; but, as Sir Joseph Bazalgette reported in November, 1882, 'nothing has occurred to throw any new light upon the subject.' In the face of this experience it may seem somewhat discouraging to re-open the question, and I readily admit the difficulty in advising the Vestry as to the means to be taken, but feeling assured that it is one of the most pressing questions of the day (especially where the sewers are inefficiently ventilated and frequently complained of as in parts of this parish), I think the Vestry might advantageously resolve to expend a sum (say 150*l.*) in inquiring into the merits of improved systems, in the inspection of their actual operation at those places where they are apparently giving satisfaction, and in subsequently making such trials thereof as may be found desirable."

The subject has been referred to the Committee of Works for consideration and report.

BUILDERS' BENEVOLENT INSTITUTION.

AN election of five pensioners on the funds of this Institution took place on Thursday last at Willis's Rooms, St. James's, the President, Mr. Henry G. Smith, in the chair. There were twelve candidates, ten men and two women.

The following are the names of the candidates, together with the number of votes recorded for each:—William Mansell, Little Titchfield-street, Marylebone, aged 66 (third application), 465 votes; Edward Bagridge, Usher-road, Bow, aged 62 (third application), 607 votes; William Voysey, Manor-street, Clapham, aged 71 (second application), 315 votes; William Humphrey, Barnes Green aged 65 (second application), 381 votes; Ralph White, Selsdon-road, South Croydon, aged 64, 854 854 votes (including 180 votes placed to his credit in consideration of his having been a subscriber to the Institution); Matthew Harrison, Exeter-street, Lisson-grove, aged 72, 37 votes; Temple George Tolley, Leytonstone, aged 72, 438 votes (including 50 in respect of subscriptions); George Shew Powell, Albany-road, Camberwell, aged 67, 850 votes (including 200 added for subscriptions); Thomas Theodore Spreadbury, Short-street, Lambeth, aged 78, 195 votes; Jacob Appleford, Oakley-crescent, Chelsea, aged 64, 785 votes (including 30 on account of subscriptions); Charlotte Austin, Melton-chambers, Chelsea (widow of Henry de Bruno Austin, aged 60, 1,221 votes (including 760 votes placed to her credit on account of her husband's subscriptions to the Institution); and Lilias Greig, Stanton-road, Barnes (widow of Robert Greig), aged 71, 250 votes.

The successful candidates were therefore Edward Bagridge, Ralph White, G. S. Powell, Jacob Appleford, and Mrs. Austin.

Votes of thanks to the scrutineers (Messrs. T. Stirling and C. Bussell) and to the chairman, terminated the proceedings.

Proposed Museum of Science and Art, Dublin.—The following architects have been selected from among the competitors in the first competition, to be invited to send in designs for the final one: Mr. T. Drew (with whom was associated Mr. Mitchell, of Dublin; Messrs. Miller & Symes, Dublin; Mr. Owen Williams, Bangor; Messrs. T. N. Deane & Son, Dublin; and Mr. F. Holme, Liverpool. The Committee of Selection were Lord Powerscourt, Sir W. Gregory, the Lord Mayor of Dublin, and as assessor, Mr. John M'Curdy, President of the Irish Institute of Architects, assisted by two officers of the Royal Engineers.

THE VICTOR EMANUEL MONUMENT IN ROME.

The monument to Victor Emanuel will be erected in the middle of the Pantheon at Rome. The base will be lofty and polygonal in shape, and will be adorned with four lions, one at each corner. Upon the pedestal will stand a funeral urn, executed in the style of the urns of the emperors, and the structure will bear the simple inscription "To the Father of his Country." For twelve hundred years the Pantheon has been a Catholic church, and there have been rumours that the Pope would oppose the intention of the Italian Government to place the Victor Emanuel monument within its walls; but it is believed that in the end prudent counsels will prevail at the Vatican, and no resistance will be offered to the execution of the project.

BALHAM AND UPPER TOOTING CONGREGATIONAL CHURCH AND SCHOOLS.

These buildings have been designed to cover a site having a frontage of about 70 ft. to the Balham High-road, and of very considerable depth.

The church consists of a wide nave without clearstory, and narrow aisles, to be used only as passages, with transepts thrown out on either side. The interior is lighted by grouped lancet windows, in two tiers in the aisles and transepts, and stone traceried ditto in the front façade, and the roof of the nave is treated internally as a wagon-headed boarded ceiling, with curved ribs and light tie-beams at intervals.

The organ and choir are accommodated in a rather deep semicircular apse, lighted by an upper arcade of pointed windows, and with a wooden vaulted ceiling.

The exterior faces of the buildings are finished with red bricks and Bath stone dressings and bands, and the interior with picked stocks, relieved in red brick, the piers of the nave arcade being in red Corsehill stone, with Bath stone moulded caps and bases.

The church will accommodate 650 persons on the ground-floor, and is designed for end and side galleries, which will eventually increase the accommodation to 1,000 sittings. It is also intended to complete the design at some future time by the erection of a tower and spire at the south-east angle of the building, which will also contain the second staircase for access to the galleries.

The lecture-hall or schoolroom, erected in 1880, is at the rear of the site, approached by a connecting corridor, and the space between the hall and the church is used for minister's and deacons' vestries and offices, and a large ladies' vestry or church parlour.

The completed scheme will probably include additional class-rooms, kitchen, and caretaker's house, &c., on the lower portion of the site behind the lecture-hall. The estimated cost of the church and vestries is 6,034*l.*, the contract being undertaken by Mr. George Candler, of Brixton-hill, who erected the lecture-hall. The architects are Messrs. Searle & Hayes, of 66, Ludgate-hill.

LEWISHAM PUBLIC BATHS.

DESCRIPTION OF ILLUSTRATIONS.

There will be two separate buildings, one at Ladywell, the other at Forest Hill. The accommodation provided in each is similar.

Each building has first and second class swimming-baths, each 90 ft. by 30 ft., together with ten first-class and twenty second-class private or slipper baths, and the necessary engineering apparatus. It is proposed that males and females shall use the swimming-baths on alternate days, but the private baths, first and second class, are distributed among the two sexes, so that both sexes can have private baths every day of the week. Distinct and separate entrances and waiting-rooms are provided for each sex, and each class. It is proposed to utilise the first-class swimming-bath in each building as a public hall during the winter months, and ante-rooms have been provided for this purpose, together with galleries and wide corridors, staircases, and extra means of exit, all doors being made to open upwards. A residence is provided in each building for the superintendent, as also the requisite office accommodation. The engineering arrangements will be of the simplest and most economical character, and unnecessary expense and all extraneous ornament have been most carefully avoided. The use of the swimming-baths upon alternate days has necessitated a special arrangement of doorways to be closed on these occasions. These doorways are marked A on plans. The total cost of the two buildings will be about 17,000*l.* The architects are Messrs. Wilson, Son, & Aldwinckle, of 2, East India-avenue, Leadenhall-street, E.C., whose designs were selected in limited competition a short time since. We think the architects have succeeded very well in giving a certain degree of picturesque effect to buildings of a generally plain and practical character.

THE CONVENT OF HIMMELSPFORTE NEAR WURZBURG, AND THE OLD HOSPITAL AT OCHSENFURTH.

These two buildings, which we now illustrate, are excellent examples of what may be called the "Religious-Domestic architecture" of the Middle Ages. In other words, they belong to that class of domestic work which appertains to religious uses. They both, for the most part, date from the fifteenth century; in fact, the Hospital at Ochsenfurth is probably entirely a work of that age, but there are attached to the Convent of Himmelspforte examples of both an earlier and a later style.

The Convent of Himmelspforte was founded in the year 1231, for nuns of the Cistercian order, but is said to have been removed and rebuilt between 1345 and 1372. Now there is rather a curious thing about these dates: it is that the doorway of the chapel (which can just be seen in our view) is evidently "First Pointed" work, and might date very well from 1231, but is certainly too early for 1345. As, however, it is the only example of thirteenth-century work in the building, and the rest of the chapel, with the exception of the roof and spirelet, certainly date from the fourteenth century, it is just possible that it formed a portion of the earlier building, and that when that was pulled down, this doorway was saved, and removed to the new site as a kind of memorial of the original foundation.

The chapel is very singular in its arrangement, but we will attempt to describe it. At the east end is a small low chancel of very fair fourteenth-century work, with traceried windows. It is nearly square in plan, and contains the altar. It opens into the nave through an acutely-pointed arch. The nave is divided into two parts, the two easternmost bays being open to the public, but the three western bays are in two stories, the upper forming the nun's choir, and the lower a kind of crypt. The spirelet, or *flèche*, is of stone, and is not, as is the usual plan, supported upon an arch, but is carried right down through the chapel, its lower portion forming a staircase leading to the nuns' choir! The interior of the nave and nuns' choir are not in their original condition, but have been modernised; however, the arrangement is evidently original. The gables at the east and west ends and the pretty little spirelet date from the close of the sixteenth century, and are probably the works of the celebrated Bishop Julius von Mespelbran.

The more domestic portions of the convent date chiefly from the end of the fifteenth century, and the date 1497 (which we have copied in our illustration), is to be seen upon the corbel of the pretty bow-window shown in our view. As the convent is still inhabited by a very strict order of nuns,—we believe Carmelites,—we were not permitted to penetrate further than the outer garden and the chapel. We were, however, informed that there are interesting cloisters. The great or outer garden is open to the public (under certain restrictions), and is a charming example of an old-fashioned garden,—just such a one as Augustus Pugin would have revelled in, with currant-bushes, apple-trees, cabbages, rose-bushes, onions, and peonies, all planted together, and the whole enclosed within grand old walls of red stone.

The hospital at Ochsenfurth is now disused, and rapidly falling into decay. It is an oblong building, running north and south, covered with one vast roof gabled at each end, and divided into three floors in height, exclusive of the great lofts in the roof. The two upper floors were used as wards, and the ground-floor for stores. On the east side, near to the south end, is a tower, the ground-floor or basement of which forms an entrance to the cellars and store-rooms. The first floor is an open porch leading to the lower ward, the second floor is a very pretty vaulted chapel or oratory, with a three-light window, having tracery of the curvilinear type. What the story above the chapel was used for is difficult to say. The upper wards contain a curious example of a Mediæval "w.c." It is entirely of stone. This hospital is situated close to the city walls, and the tower is surmounted with a spire which, at a short distance, gives the building the appearance of a church. This might have been purposely done in order to secure greater protection for the inmates.

NEW COUNCIL CHAMBER, GUILDHALL.

The illustration shows an interior view of the new Council Chamber now in course of erection for the Corporation of the City of London. It is duodecagonal on plan. The diameter of the chamber is 54 ft. between the screen, with a corridor outside this 9 ft. wide. Its internal height from floor to bottom of lantern light is 62 feet, and to the top of lantern is 82 ft. A gallery for the use of the public and the press, accommodating about 150 persons, is provided over the corridor, the entrance for strangers and general public being from Basinghall-street by a special staircase. A private one from the corridor and offices, below the chamber, is also provided for the use of the members of the corporation only.

The general style and character is in harmony with the Guildhall and Library. The materials used are Portland and Bath stone for the windows, dressings, &c.; the walls are faced externally with "Kentish rag." The columns and arches are in polished Hopton Wood stone. The twelve traceried and carved screens are executed in wainscot, as also the ribs of the dome and lantern over, the filling-in between the ribs being specially prepared for colour decoration.

The entrances are arranged so that the Lord Mayor and Aldermen will enter the chamber from the eastern end of the Guildhall through an ante-room, the members of the Court of Common Council having a separate entrance from the existing corridor leading from the centre of the north side of the Hall to the present Council Chamber.

Sitting accommodation is provided for all the members of the Court of Common Council, 206 in number, the seats being arranged concentrically to the Lord Mayor's chair, and on a rising stage. The Sheriffs, Aldermen, and Recorder, about twenty-eight, and other officers and clerks necessarily in attendance, with the sword and mace bearers, being about sixteen or twenty more, will be provided for on the raised daïs on each side and below the Lord Mayor, a space in the centre of the chamber being reserved for the exhibition of plans, papers, models, &c., and the accommodation of petitioners to the court.

The various practical questions connected with warming, ventilation, acoustics, &c., have been carefully considered.

The work is being executed from the design and under the superintendence of the City Architect, Mr. Horace Jones, P.R.I.B.A.

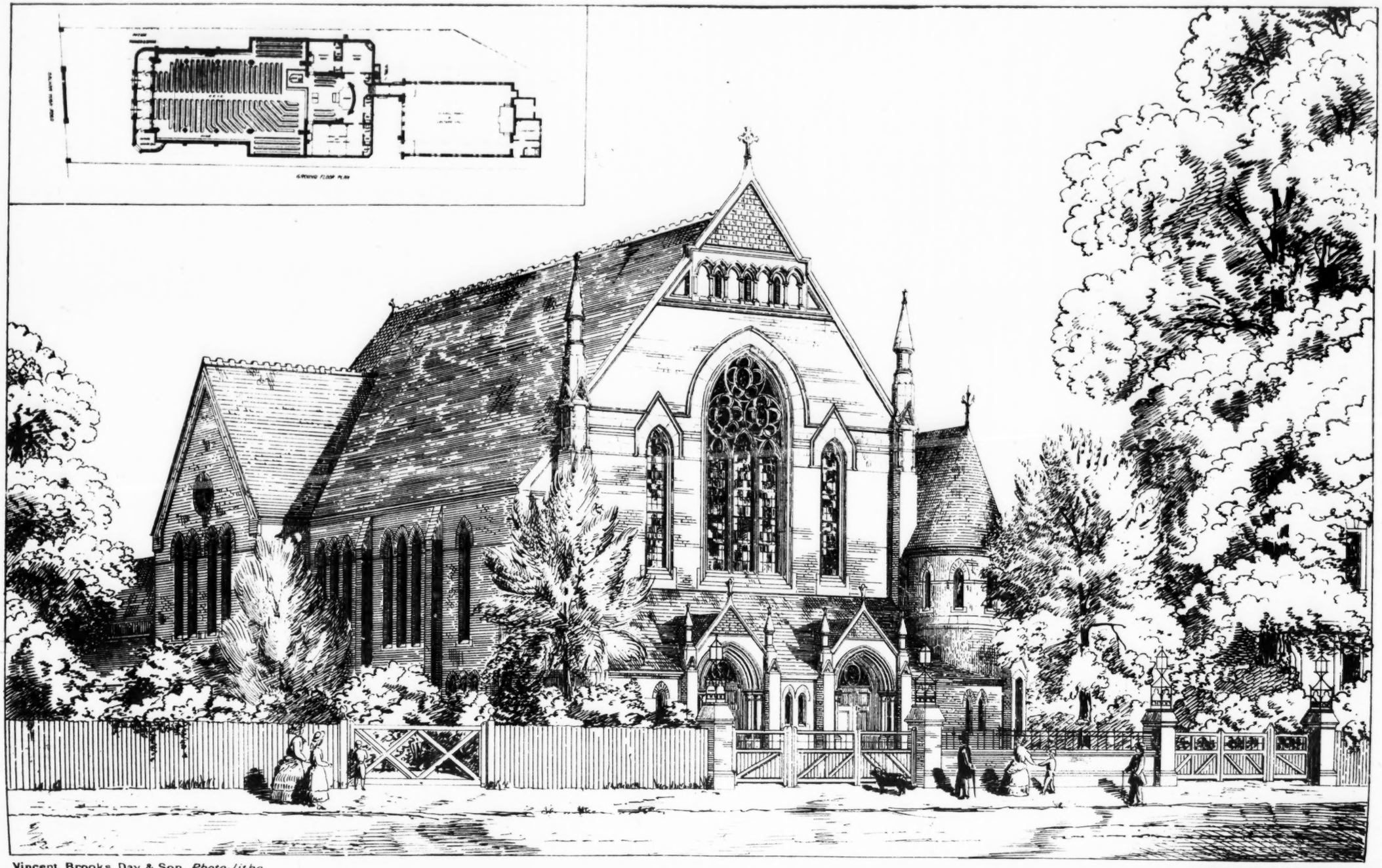
Mr. B. E. Nightingale, of Albert Works, Lambeth, is the contractor.

The estimated cost is about 35,000*l.*, exclusive of fittings.

THE LIEBIG MONUMENT AT MUNICH.

Great indignation is felt in the Bavarian capital at an unexampled piece of vandalism perpetrated upon the statue recently erected in that city in honour of the celebrated chemist, Baron Justus von Liebig. A few nights ago some unknown person wantonly disfigured the monument by throwing over it some liquid which not only caused a number of ugly discoloured patches, but which ate into the surface of the marble to a very appreciable depth. An official examination of the statue has been made by Professor von Pettenkofer and Dr. Baeyer, who report that the liquid employed in the commission of the outrage was nitrate of silver. The portions of the marble on which it was thrown are eaten away to a depth of from two to three millimètres.

The authorities have offered a reward of a thousand marks for the discovery of the guilty parties.



Vincent Brooks, Day & Son, *Photo-litho*

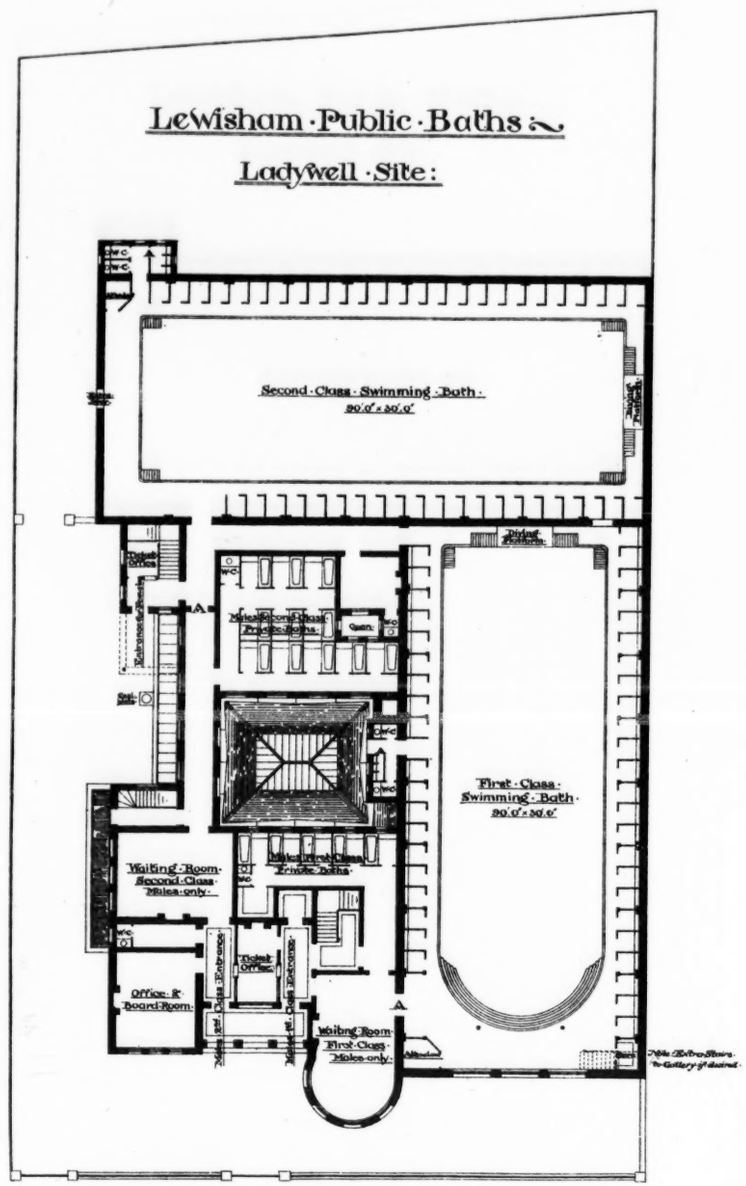
BALHAM: & : UPPER: TOOTING: CONGREGATIONAL: CHURCH:

SEARLE & HAYES ARCHITECTS
66 LUDGATE HILL E.C.

BALHAM & UPPER TOOTING CONGREGATIONAL CHURCH

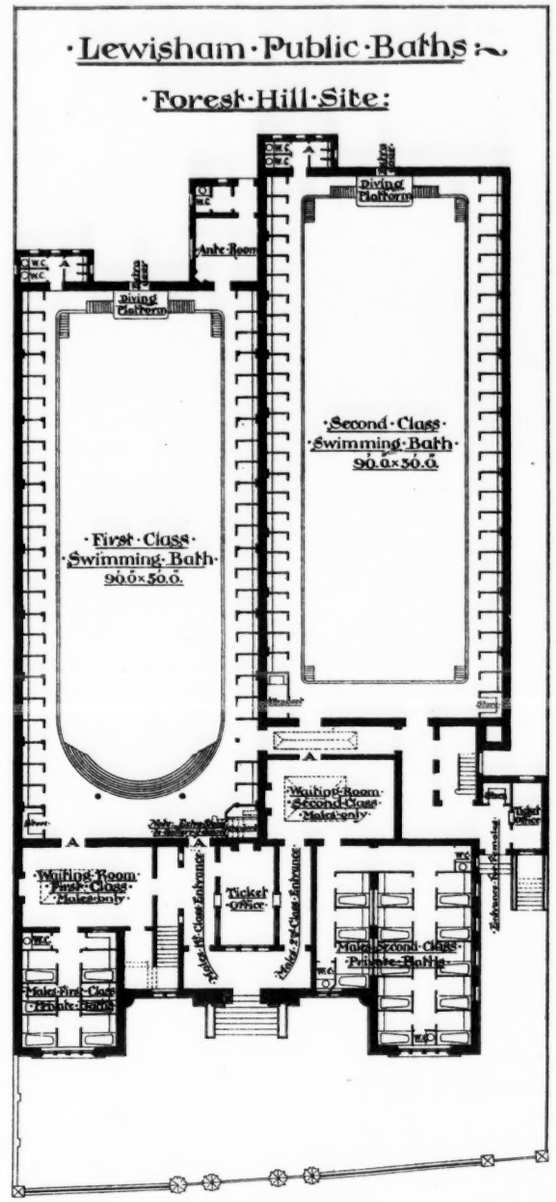
Lewisham Public Baths:

Ladywell Site:



Lewisham Public Baths:

Forest Hill Site:

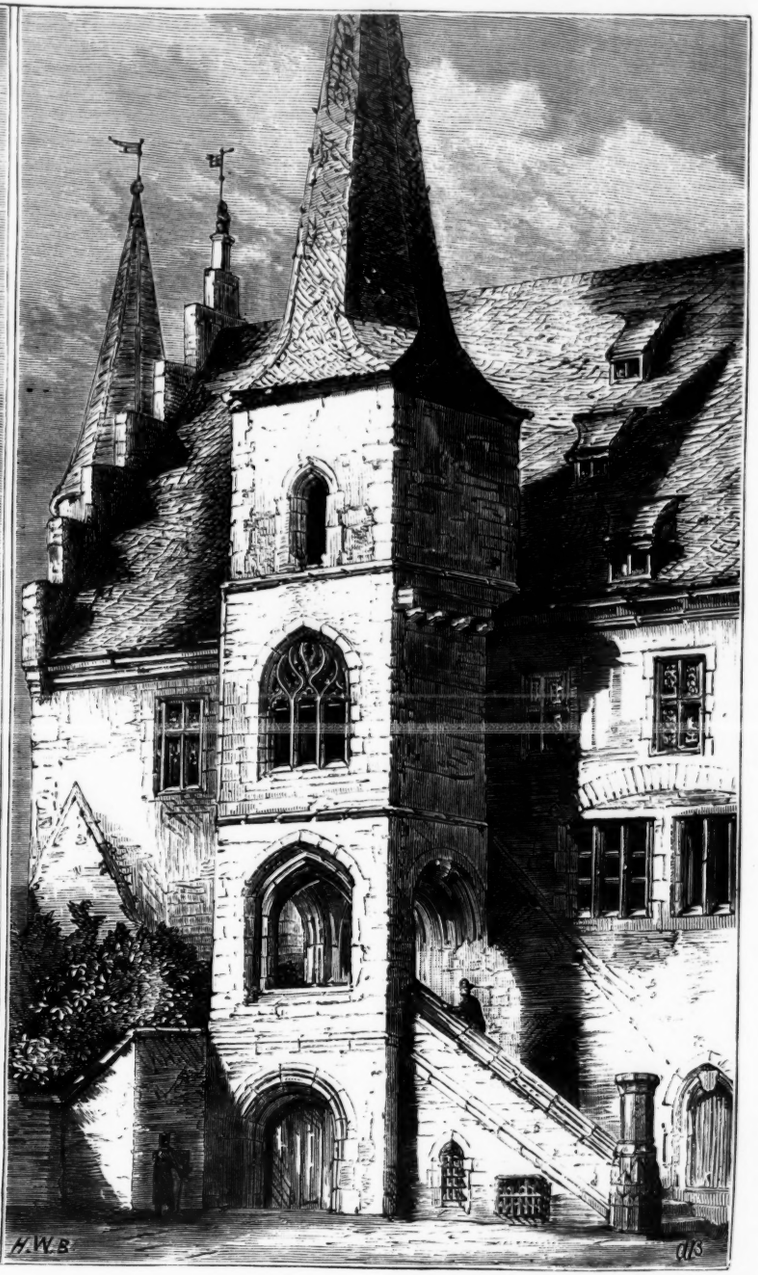


MESSRS. WILSON, SON, & ALDWINCKLE, ARCHITECTS.

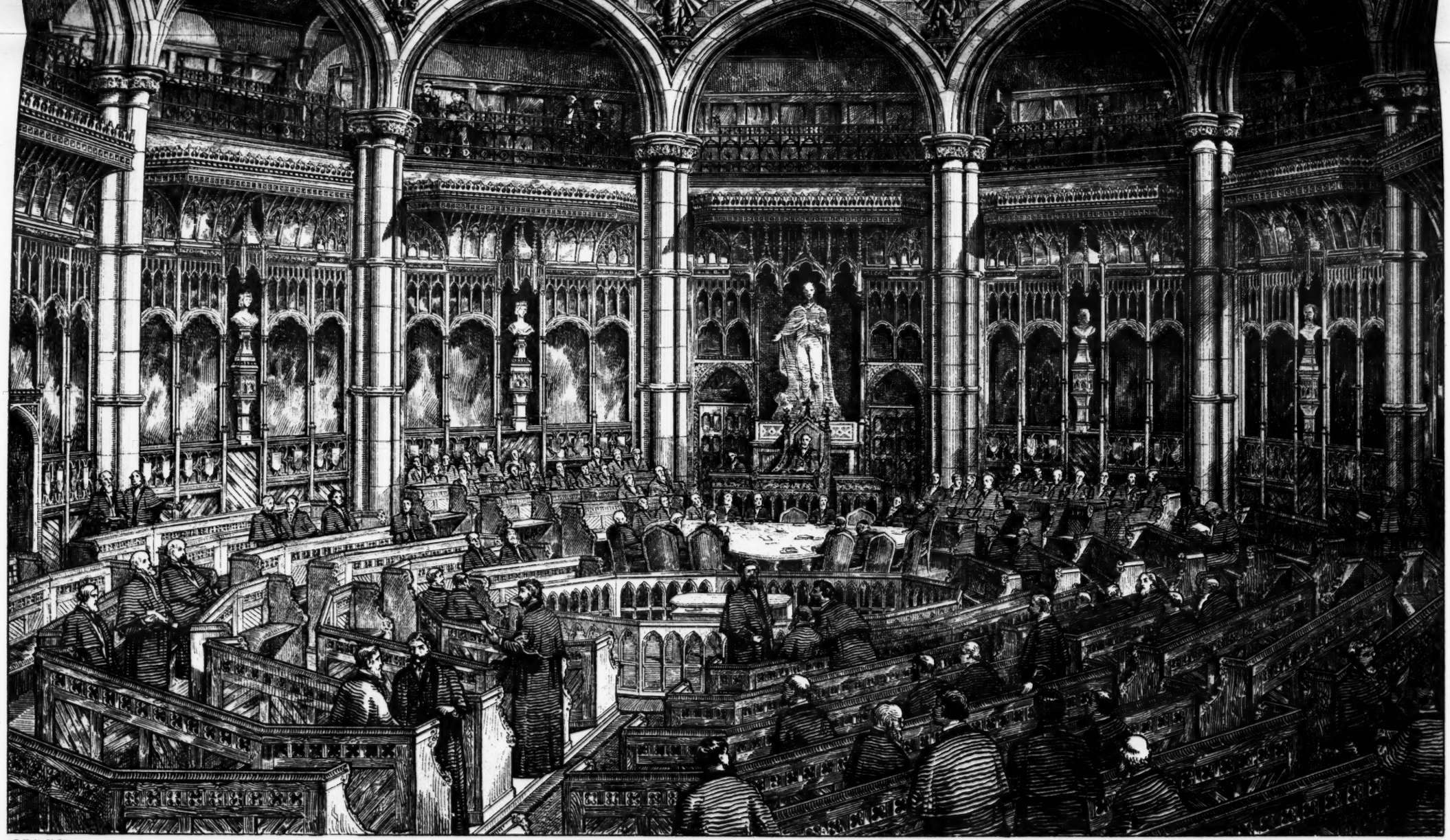
Wyman & Sons, Photo-Litho
C^t Queen S^t London, W.C

1891

CONVENT OF HIMMELSPFORTE, NEAR WÜRZBURG.



HOSPITAL, OCHSENFURTH.



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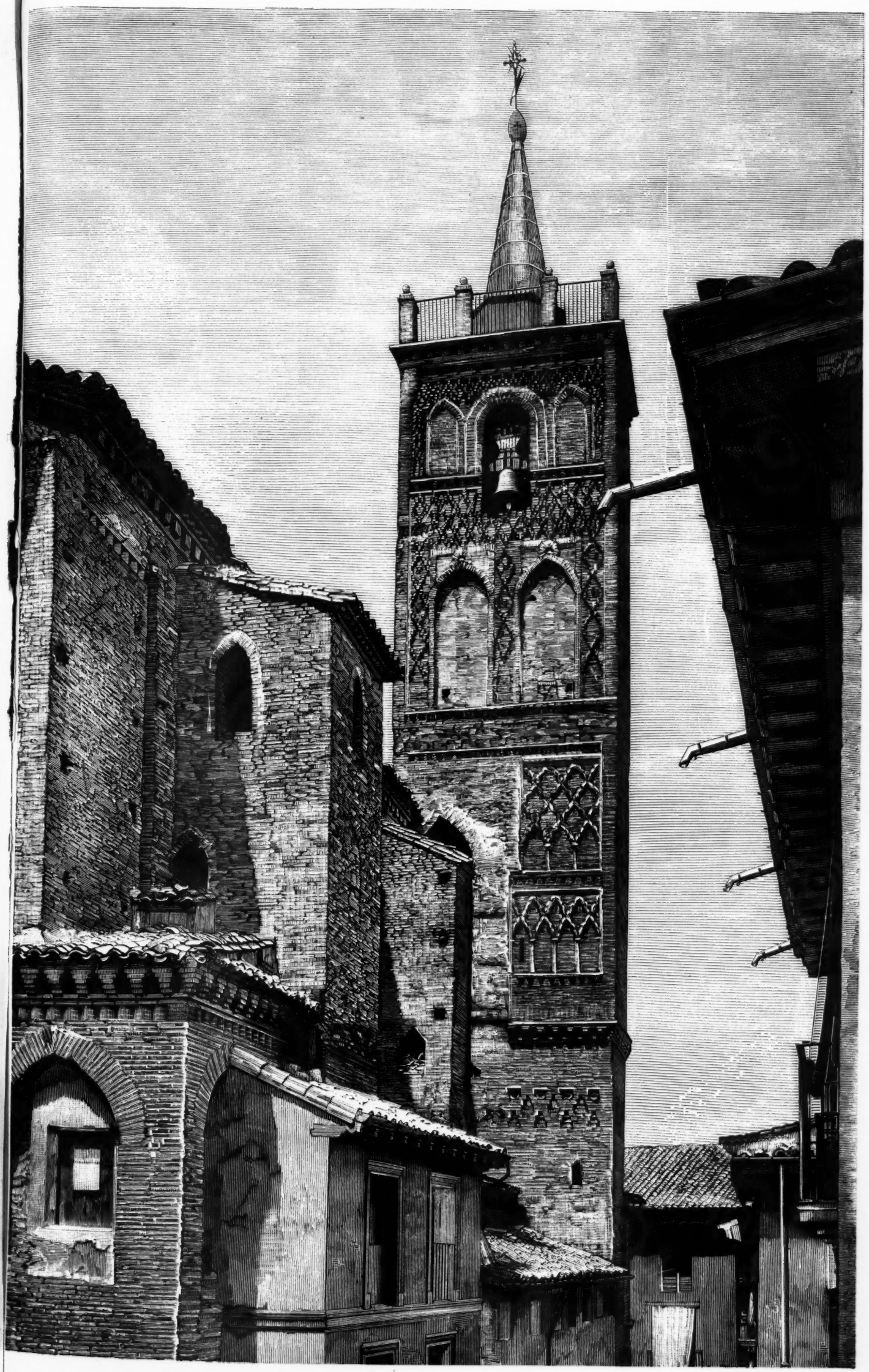
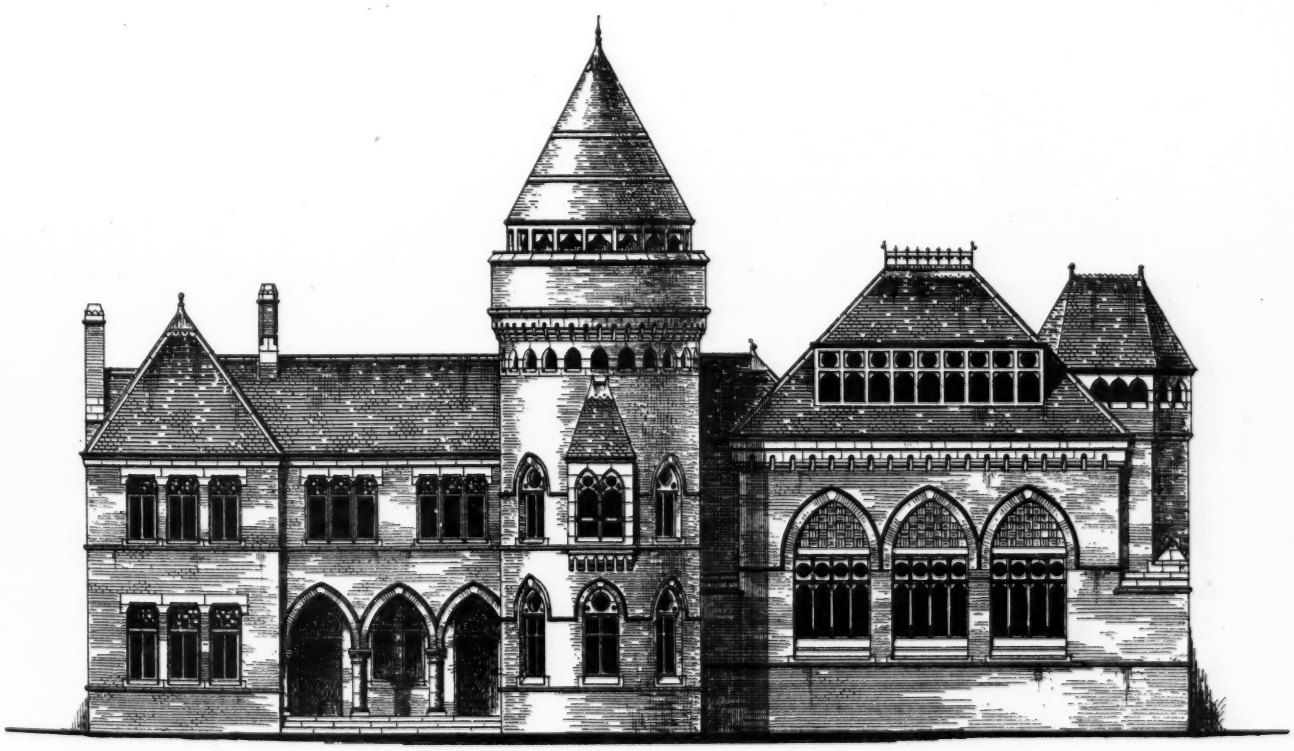
8, Castle St. Holborn, London, E.C.

THE NEW COUNCIL CHAMBER, GUILDHALL.—MR. HORACE JONES, ARCHITECT.



CHURCH OF ST. GIL ABBOT, SARAGOSSA.

Front Elevation:~ Forest Hill Site:



Front Elevation:~ Ladywell Site:

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LEWISHAM PUBLIC BATHS.——Messrs. Wilson, Son, & Aldwinckle, Architects.

Vincent Brooks, Day & Son, *Photo-litho.*

NEW ZEALAND INSURANCE COMPANY'S BUILDINGS, AUCKLAND. — Mr. Alfred Smith, F.R.I.B.A., Architect.

THE PARISH CHURCH OF SAN GIL ABBOT, SARAGOSSA.

HISTORICAL Cæsarea Augusta (the modern Saragossa) was one of the first Iberian cities in which Christian churches were established at the earliest period of our era, even before the heathen persecutions were over. The first church, del Pilar, was founded in the second century. Solemn worship to the memory of the numerous martyrs was carried on in the catacombs long before the exterior church was raised, in the beginning of the fourth century. A little later the church which, since the twelfth century, bore the name of San Gil Abbot was constructed. This church was one of the few which remained open for Christian worship during the domination of the Moors.

We give an exterior view of this church, which rises in the street of the same name, and appears to have been rebuilt in the eleventh century, to judge by the pointed arches, devoid of all ornamentation, disposed in its decaying walls. Its lofty and well-shaped square tower, of a later period, is a graceful specimen of Arab architecture, not, however, improved by the extraneous helmet, in very bad taste, which carries on its top the cross. In the interior, of more recent date, which consists of a wide nave and six side chapels, with good frescoes and of plain ornamentation, are preserved some very remarkable pictures.

The Church of San Gil was bestowed by Don Alfonso I. (el Batallador), after the re-conquest of Saragossa in 1118, on the bishop and canons of the church of Huesca, and the donation was confirmed by the prelate Don Pedro de Librana. But a few years later, in 1145, by virtue of the concordate signed at Soria in the beginning of March, with a view of adjusting the disputes between the two dioceses, Dodon, bishop of Huesca, ceded the church of San Gil and all its privileges and revenues to the bishop of Saragossa, Don Bernardo II.

NEW ZEALAND INSURANCE COMPANY'S BUILDINGS, AUCKLAND.

THE New Zealand Insurance Company having purchased the lease of the city endowment property from the Post-Office and Custom-house to Queen-street, having frontage to Shortland, Queen, and Fort streets, offered recently a premium of 250*l.* for a suitable design for the buildings to be erected. The competition was open to the architects in all the colonies, and the result was that forty-five plans were sent in, five of which came from Melbourne. All the plans were on exhibition in the hall in the New Zealand Insurance Company's building, and a good many people took the opportunity of inspecting the collection. The directors made a full and careful examination of the plans, and made a selection of one as being worthy of the premium offered. This proved to be by Mr. Alfred Smith, F.R.I.B.A., of the firm of Messrs. Smith & Arnold, architects, Queen-street.

The main idea in the successful design is the construction of a spacious arcade from Shortland to Fort-street, thus giving three parallel rows of shops independent of those fronting Shortland and Fort streets. The principal entrance is at the corner of Shortland and Queen streets to a vestibule 20 ft. in width, leading into a grand staircase and the elevator, behind which is a sloped passage to the basement. On the Queen-street side of the entrance on the ground floor is a single shop, and on the Shortland-street side a double shop. On the Queen-street frontage to Fort-street corner (where there is a double shop) there are six shops, inclusive of Fort-street corner. There are on the Shortland-street frontage, next to the Post-office, two shops; then an arcade running through to Fort-street, the frontage to which on either side is occupied by a series of shops. The space above is an open court used for a lighting area. There is also a small court for lighting purposes to shops on the eastern side of the arcade. The Fort-street frontage, east and west of the arcade, is also devoted to a series of business premises. The basement is so arranged that the cellars are lighted and ventilated both from the street and arcade. The elevator which runs up to the gallery of the tower communicates with the basement, as also with a staircase at the opposite corner, provision being also made for a hydraulic lift. Round the shaft of the elevator is a handsome staircase to every floor. The first floor contains twenty-three offices, and the second and third twenty-two each. The roof being high-pitched will afford an excellent range of rooms, suitable for artists or photographers, or any occupation requiring special lighting. A handsome verandah of light wrought-iron will run round the street frontage of the block.

BUILDING TRADES' EXHIBITION IN BRISTOL.

ON Monday last a Building Trades' Exhibition was opened in the Rifle Drill-hall, Queen's-road, Bristol, under the auspices of the National Trades' Exhibition Association, of which Mr. Philip Shrapnel, well known in connexion with the annual Building Exhibitions in London, is the secretary. The exhibits include recent inventions and novelties in construction, sanitation, decoration, sculpture, art furniture, hardware, majolica, terra-cotta, smoke abatement, gas fittings and stoves, and electric lighting apparatus.

We note among the exhibitors some well-known firms. Messrs. Ashton & Green (Limited), of London and Bristol, have four stands, and show a variety of marble, stone, and enamelled slate chimney-pieces, with other of their specialties. Messrs. John Hall & Sons, of Broadmead, Bristol, have a good display of glass used for building and decorative purposes. The Cattybrook Brick Company exhibit white-pressed facing and other bricks. Among other local exhibitors are the Fishponds and Bedminster Brick and Tile Company, and the Great Western Pottery Company, Newton Abbot. Other well-known exhibitors are Messrs. Pictor & Sons; Clark, Bunnett, & Co.; H. & C. Davis & Co.; J. L. Bacon & Co.; and the Bower Barff Rustless Iron Company.

The Exhibition will remain open until the end of next week.

THE LONDON AND SOUTH-WESTERN BANK BUILDINGS AT STREATHAM.

NEW business and other buildings are at the present time being erected in and immediately around Streatham, which is expanding at a remarkable rate by the laying out of the Telford Park and other adjoining estates for building purposes. A feature in the buildings which are in quick succession rising up is the ornamental character of the shop and other business establishments in the main road. Amongst these are new premises which have just been erected for the London and South-Western Banking Company. The building has two main frontages, with the entrance at the angle. The ground-floor part of the elevation is in Portland stone and polished Aberdeen granite, the upper portion being in red brick, with Portland stone for window dressings and ornamentation. There is a handsome balcony immediately over the entrance, with balconettes above the ground-floor, carried entirely around the two frontages. The floor of the telling-room is laid with tesselated pavement. Under this apartment is the strong-room, the walls of which are composed of fire-brick 18 in. in thickness, and lined with hoop iron, the safes and door having been supplied by Milner's Safe Manufacturing Company. The door of the safe weighs 2½ tons. The upper part of the building consists of the manager's residence.

Mr. Crewe is the architect, and Mr. Johnson, of Wimbledon, the contractor.

Cantor Lectures. — The first course of Cantor lectures, at the Society of Arts, will commence on Monday next, and the subject will be "The Scientific Basis of Cookery," by W. Mattieu Williams, F.C.S. The introductory lecture will treat of modes of applying heat; radiation, conduction, and convection; roasting, grilling, baking, boiling, and stewing. The second lecture will deal with the constituents of flesh; the action of heat on albumen, gelatine, fibrin, &c.; exosmosis and endosmosis as operating in the kitchen; maceration; caseine; the cookery of cheese and its nutritive value; milk, butter, and "Bosch." In the third and concluding lecture will be considered the nutritive constituents of vegetables; the changes effected by cookery on vegetable substances, &c. The lectures will be illustrated by a selected exhibition of cooking apparatus and appliances.

THE PATENT "LAZY" VENTILATOR.

MR. ALFRED R. HOLLAND, manager of the Grand Hotel, Charing-cross, thinking (as others before him have thought) that it would be a considerable convenience to have an easy method of admitting into dwelling-rooms, direct from the outside, a constant stream of air (provided it can be done without causing any draught, and that it can be readily controlled), has devised and patented what he has christened the "Lazy" ventilator,—not very happily, as it seems to us, inasmuch as the idea intended to be conveyed by the name is that the ventilator is one likely to commend itself to people who do not care to take much trouble about ventilation. The ventilator can be applied to any existing window at a moderate cost. It has been practically tried and adopted in the Grand Hotel, and arrangements are pending for its introduction into several other establishments.

Its construction is, briefly, as follows:—An opening is made between the meeting-rails of the sashes; this opening is covered by a hinged valve, consisting of a strip of brass or other metal. To admit the air it is only necessary to pull a cord, which raises the valve; the incoming air strikes against the underside of the hinged plate, and is deflected upwards without causing any draught to persons near the window. On releasing the cord, the valve closes automatically. The valve may be made of metal, india-rubber, glass, or other material, and may be covered on the under-side with felt or cloth, so as to entirely shut out the draught when the valve is closed.

We have had an opportunity of seeing the ventilator in action, and it appeared from tests applied to answer admirably. It should not be forgotten, however, that previous inventors (among them Dr. Peter Hinckes Bird) have devised means for effecting practically the same end, as an inspection of the models and inventions in the Parkes Museum will show.

AN ARCHITECT'S CLAIM.

TAXED COSTS.

THE vexed question of taxed costs of architects and other professional men was fought last week by Mr. H. J. Snell, a West-country architect. The *Daily Mercury* (Plymouth), in reporting the case, says:—

"At the Stonehouse County Court, before the judge (Mr. J. Giffard), Mr. H. J. Snell, architect and surveyor, brought an action against Mr. J. Carnell, of Yelverton, to recover 12*l.* 2s. 9d. for services rendered.

Mr. J. Shelly appeared for the plaintiff, and Mr. J. E. Curteis for the defendant.

Mr. Shelly said that in the year 1881 the plaintiff was employed by the defendant to prepare for the erection of a dwelling-house upon his property at Yelverton. This he did. Just at this time Mr. Carnell received notice from the Princetown Railway Company that they required to run through the land. Mr. Snell then prepared plans showing how the land might be laid out for building purposes. In order to do this, Mr. Snell visited the land on several occasions, made tracings, held consultations, &c. Mr. Snell drew up his evidence, and attended two days at the hearing of the arbitration. The defendant won the arbitration, and Mr. Snell sent in his costs, which were taxed in the ordinary way, and his bill was cut down. The taxation was, of course, as between party and party, but the defendant had refused to pay Mr. Snell the balance of his account.

Mr. Snell said his valuation of the land was 659*l.*, but the railway company had only offered 280*l.* The arbitrators awarded 502*l.* As a result of the arbitration, he received a cheque for nine guineas in settlement of a bill of 22*l.* 2s. 9d. He was told that his bill had been taxed.

Mr. Curteis cross-examined the witness at length, and elicited the fact from the witness's own private diary that he was engaged altogether in this work twenty-two hours, aand his clerk eight hours.

Mr. Curteis said the witness was allowed 2*l.* 2s. a day, and 5*l.* 5s. as qualifying fee. Taking the ordinary scale of allowance to professional men, that was a fair allowance.

His Honour.—I am not so sure of that.

Mr. J. H. Keats, architect and surveyor, and Mr. J. B. Foster, surveyor, said the charges were fair and moderate.

Mr. Curteis said the defendant fought this case as a matter of principle, as it was likely to be a test case. This action came with particularly bad grace from the plaintiff, as he had been already paid a considerable sum of money in connexion with works on the defendant's lands. He considered that some of the charges,—1*l.* 11s. 6d. for two hours, and 3*l.* 3s. for five hours,—were unfair. The costs of 2*l.* 2s. a day

allowed to plaintiff, and 5*l.* 5s. for preliminary work, were fair and just.

His Honour said he did not see anything unreasonable in these charges, considering the amount of ability, knowledge, learning, and skill which the plaintiff brought into operation for the benefit of the defendant. He did not agree with Mr. Curteis that the amount of costs allowed on taxation was any criterion at all.

He gave judgment for the plaintiff for the full amount claimed, with costs on the higher scale.

ASSOCIATIONS WITH THE AVENUE HOTEL SITE.

Sir,—In a footnote to the account of the new First Avenue Hotel in your impression of last week (p. 682), "Dryden" is, I think, a mistake,—though doubtlessly a typographical mistake,—for "Haydn." The circumstances under which the composer of the "Creation" came to reside at No. 45, High Holborn,—a house that could scarcely have been contemporary with Dryden,—may be not uninteresting to your readers.

Mr. C. H. Purday, who wrote and set to an older air "The Fine Old English Gentleman," calling one morning some forty-five years since at his brother's music-shop (the house in question), met there a fine-looking hale old gentleman, who said, "I don't suppose you know who I am?" Mr. Purday bowing assent,—I give the story in almost his own words,—the elderly gentleman resumed, "My name is Bland. You see in me the first proprietor of this establishment. About forty years ago, having made up my mind that music could attain no higher degree of excellence or cultivation, and that it would lose more rapidly than it had gained favour, I resolved to dispose of this business and embark my capital in some other venture. I am now ninety years of age nearly." Mr. Bland then went on to recount how he was the first to cross over to Germany to bring the celebrated Haydn to this country, adding that it was at the very house in which they were then conversing that Haydn was domiciled for some while on arriving in England. Reaching Vienna, Mr. Bland was introduced to Haydn when the latter was shaving. "Ah!" he said, complaining that the process was by no means easy, "what would I not give for a good pair of English razors! Why, I would give one of my best quartets for them." "So," said Bland, "I hastened to my hotel and returned with a pair of my own, with which he seemed greatly pleased, and at once handed me the quartet which I published by the name of the 'Razor Quartet.' He, at the same time, gave me the cantata 'O Naxos.'" Haydn removed subsequently to No. 1, Bury (Berry) street, St. James's.

W. E. Milliken.

WOTTON'S "ELEMENTS OF ARCHITECTURE."

Sir,—In the interesting abstract of Sir Henry Wotton's "Elements of Architecture," contained in your last week's number, it is conjectured that that composition first appeared in 1651 under the direction of Izaak Walton. I beg to say that I have a copy of the "Elements," consisting of 123 pages, printed in 1624. This formerly belonged to J. Britton, having his name on the title-page, followed by that of Mr. J. Elmes.

From a memorandum in Mr. Elmes's writing he seems to have considered it the author's own copy; for it runs thus:—"*N.B.*—This copy has a note in manuscript by the author at page 88,' the style of which is evidently of the time.

J. O'Connell.

ELM-WOOD BLOCKS.

Sir,—In reply to the inquiry made [p. 704, *ante*] as to the use of elm for wood-block floors, I introduced this material in the floor of the new church at Merifield, near Torpoint, fifteen years ago; and the blocks have lasted and worn perfectly. But they were 2½ in. thick, and were Burnetised before laying, which process does not seem to afford any certain protection from decay, though it seasons the wood by driving out the sap, and makes it less liable to the same amount of shrinkage. With elm, again, there is not the same danger of decay from a damp bed as there is with other wood. They should be laid nevertheless, in a waterproof composition so as not to cause the wood to swell in the laying and shrink in the drying. The floor above alluded to has been kept in a fine condition by rubbing with wax and turpentine, and is quite ornamental.

Wm. White, F.S.A.

ARCHITECTS, BUILDERS, AND ESTIMATES.

Sir,—I observe in your report of the annual dinner of the Builders' Benevolent Institution [p. 650] that Mr. Howard Colls makes some strong remarks on the subject of architects and quantities, one natural inference from which may be that builders should put no faith in architects in this matter.

Allow me to say that an architect, strictly speaking, ought to have nothing whatever to do with the quantities. It is not his business, but the builder's, to prepare estimates; and the architect's duties are complete when he has furnished the working drawings and specification, except the superintendence during the progress of the work. Although, of course, the practice of providing bills of quantities has some conveniences and advantages in obtaining estimates, and a basis of uniformity for the same, in many respects it was an evil day for architects when they undertook to prepare them; for, though it may have put much money into the pockets of some, it has undoubtedly lowered the *prestige* of the whole body. It has also exposed them to the suspicion and distrust of the building public and their clients of sharing with the quantity surveyor, or builder, in surreptitious profits and commissions; and lastly, but not least, the custom which has been developed in some offices of good standing, of deputing the specifications to surveyors, has put a whip into the hands of builders to be scourged with by them, as exemplified in the speech referred to.

E.

BRICKMAKING MACHINES.

Sir,—A paper from America states that at the Louisville Exhibition (Kentucky) now open, one of the great attractions is a brickmaking machine by Cyrus Chambers, of Philadelphia, which every day kneads, squares, throws into an oven, and dries upwards of 50,000 bricks of perfect shape and quality. Is it not worth while bringing this result before the notice of our brickmakers at home, and could not any of your contributors give further particulars concerning recent improvements made in an industry of such primordial importance to those connected with the building profession in our country?

C. H. C.

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

5,411. R. Schulz, Dresden. Petroleum-heating apparatus. Nov. 16, 1883.

5,421. E. Hurley, Birmingham. Closet-pan apparatus. Nov. 17, 1883.

5,438. T. E. Bladon and W. Matthews, Birmingham. Apparatus for ventilation. Nov. 17, 1883.

5,467. M. Mackay, London. Plastic compounds. Nov. 20, 1883.

NOTICES TO PROCEED

have been given by the following applicants on the dates named:—

Nov. 20, 1883.

4,944. A. C. Kennard, Falkirk. Heating stove. Oct. 17, 1883.

Nov. 23, 1883.

3,634. B. J. B. Mills, London. Hygienic joint for doors, windows, &c. (Com. by J. Couturier, Lyons.) July 24, 1883.

5,019. E. Newton, Hitchin. Securing glass in greenhouses, window-frames, &c. Oct. 22, 1883.

ABRIDGMENTS OF SPECIFICATIONS,

Published during the week ending November 24, 1883.

1,570. R. A. Hunter, Dublin. Ventilators and chimney-exhausters. March 28, 1883. Price 8d.

Across the top of the pipe or shaft are two horizontal plates, the pipe projecting a little above the lower one. The wind blowing across between these two plates establishes an upward draught.

1,643. F. J. Biggs, London. Latches and locks. April 2, 1883. Price 2d.

This relates to methods whereby the lock is adaptable to either right or left hand doors. (*Pro. Pro.*)

1,658. J. Wright, London. Manufacture of cement. April 3, 1883. Price 2d.

This is made from different furnace slags pulverised and mixed together. (*Pro. Pro.*)

1,688. H. J. Allison, London. Coloured glass windows. (Com. by J. La Farge, New York, U.S.A.) April 4, 1883. Price 4d.

A light metallic framing is substituted for the usual "leading," and a thin sheet of glass is placed on one side of the coloured glass work. (*Pro. Pro.*)

1,690. F. P. Preston, J. T. Prestige, and E. J. Preston, Deptford, and E. W. de Rusett, Anerley. Lavatories. April 4, 1883. Price 6d.

This is an improvement on Patent No. 4,013, of 1880, in arranging the fittings of folding lavatories. The basin is supported by lugs projecting from the frame, and is so shaped that when turned up a spout shoots the water into the receiver below. The supply vessel above may be pivoted so that the water can be poured out, or a pipe may lead therefrom to the basin. A looking-glass is pivoted above, and shelves or racks are made for the water-bottle, tumblers, &c.

1,705. T. C. Olney, Manchester. Construction of hot-water apparatus for heating buildings, &c. April 5, 1883. Price 6d.

To combine the advantages of the high and low pressure systems a vertical closed tube is connected with the hot-water circulating pipe, which again is connected with a closed cylinder, within which is a double-acting inlet and outlet safety-valve, similar to that described in Patent No. 4,393, of 1881. This cylinder is connected with the supply-cistern.

1,712. J. Barnes, Manchester. Damp-proof and non-inflammable material for lining walls, &c. April 5, 1883. Price 2d.

This is made of the pulp of papyrus pressed and rolled, and then coated with a mixture of tallow, cotton-seed oil, Burgundy pitch, tar, resin, alum, and gum arabic, in a boiling state, over which again is placed a sheet of textile fabric. (*Pro. Pro.*)

1,728. F. Service, London. Tool for use in pointing the joints of brickwork and masonry. April 5, 1883. Price 6d.

This tool has two spring blades, the distance between which is regulated by a screw. The ends of the blades are turned outwards at right angles, and are V-shaped. The edges of the blades are sharpened near the bends, and the putty is cut off on both sides simultaneously.

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

CLOCKS AND BELLS.

Tiverton.—A new clock for the tower of St. Peter's Church, Tiverton, has just been set in motion by the donor, Mr. H. S. Gill, J.P. The preparation of the chamber for the reception of the clock was, with other work in the tower, entrusted to Messrs. Grater & Pyle, builders. From the bells to the bottom of the tower everything has been thoroughly renovated, and the various chambers have been substantially floored,—not too soon, as the floor of the belfry was found to be in a dangerous condition, the beams supporting it being broken. Formerly the clock chamber was entered from the room beneath by aid of a ladder through a trap-door, but now a doorway, 6 ft. high and 2 wide, has been constructed a foot or two above the clock chamber, which is now conveniently entered from the staircase by a short flight of steps. The clock itself is an eight-day turret clock, made by Messrs. Gillett & Co., of Croydon. The skeleton dial on the eastern side of the tower is 7 ft. 6 in. in circumference. The quarter-hours are chimed on the eight bells of the church, and the hour is struck on the tenor bell.

Ladock (Cornwall).—A new peal of six bells has just been hung in the tower of the parish church to take the place of the three old ones, one of which had been in use since the time of Charles II. They bore the dates 1670 and 1743. These dates have been retained on the new bells, as well as the old inscriptions. The old framework, as also the beams and floor, had become so decayed as to render it dangerous to ring the bells. The six new bells are in the key of G, the tenor weighs about 12 cwt., and the weight of the peal is about 2¼ tons. They are supported on beams of massive English oak, and the framework is of the same material, and are well hung for scientific ringing. They were cast by Messrs. Taylor, Loughborough, and fitted and hung by Mr. W. Agget, of Chagford, Devon. In 1864 the restoration of the church was completed, the whole of the expense being borne by the Rev. Canon Wise, rector of the parish, and after an interval of nearly twenty years the parishioners with unanimity and zeal decided to raise the necessary funds for the erection of the peal of bells, and thereby testify their appreciation of their rector's many acts of liberality during the past thirty-seven years. The sum of 246*l.* was raised, which, with 12*l.* given by the rector, provided for the cost of the new bells.

Cardiff.—A large clock has just been completed and fixed in the tower of Wenroe Church, Cardiff. It is fitted with all the latest improvements, and is by Messrs. John Smith & Sons, of Derby.

British Museum Lectures. — Sir James Alexander occupied the chair at the third of Mr. Hodgetts' lectures, in the Anglo-Saxon Room, on Wednesday. The lecture was very successful. We shall give a detailed report of the first three lectures in our next.

PROVINCIAL NEWS.

Northampton.—The whole of the new offices of the London and North-Western Railway, at the Castle Station, in this town, were opened on the 19th ult. The new building is two stories high, with a ground measurement of 120 ft. by 40 ft. The materials most largely used in its construction are Loughborough red pressed bricks, with white glazed jambs, Hollington stone sills, and Duston stone strings and cornices. The building has been erected for the company by Mr. J. Hartley, of Birmingham, who was also the contractor for the adjoining goods warehouse. Mr. J. Savage, who has acted in this capacity during the construction of the entire station, was clerk of the works, and the Dalston Iron Co. supplied the ironwork. The cost of the passenger station approaches 40,000*l.*

Woolston (*Southampton*).—On the 19th ult. the Clausentum Masonic Hall, Woolston, which has just been erected for the accommodation of the brethren of the Clausentum Lodge of Free and Accepted Masons, was consecrated by the R.W. Provincial Grand Master of Hampshire and the Isle of Wight, Br. W. W. B. Beach, M.P. The building is constructed of red bricks, pointed externally with black mortar, and relieved with bands of white bricks, and Bath stone dressings to doors, windows, &c., a prominent feature in the front being a representation of a Roman eagle, surrounded by a laurel wreath, with the word "Clausentum" under, emblematic of the lodge, carved in stone by Mr. Munday, of Fremantle. The lodge-room is approached through an ante or robing room, and is 40 ft. by 24 ft., 14 ft. high at the sides, and 20 ft. in the centre, being ceiled halfway up the rafters. The ceiling is cut up into four bays by three ornamental roof-trusses, each bay being subdivided into panels by moulded wooden ribs. A lantern extends the whole length of the two central bays, the sashes of which are glazed with obscured glass in geometrical patterns. A semicircular-headed recess is formed in the eastern end, containing a circular window, glazed with stained glass in Masonic patterns and colours. The whole of the premises are lighted by gas, the lodge-room having, in addition to four brackets, two special made brass tripod pendants from lantern, each having Sugg's patent 100-candle burners. This portion of the work has been done by Mr. George Vivian, of Bernard-street. The building has been designed, and the work carried out, under the superintendence of Br. W. H. Mitchell, architect, Southampton, the contractor for the works being Br. W. H. Chapman, P.M., of Woolston.

Leeds.—At a meeting of the Leeds Town Council on Monday last, Mr. Emsley introduced a series of resolutions, the first of which was to enable the Corporation to make and maintain a new street commencing in Park-row, opposite the south-eastern corner of the General Post-office, and terminating at the junction of Aire-street with Wellington-street; and also to widen and improve Infirmary-street, Quebec-street, Wellington street, and Aire-street. Another resolution authorised and empowered the Corporation to purchase by compulsion or agreement the Coloured Cloth Hall estate and other lands, houses, and property required for the new street and street improvements before mentioned. Other resolutions submitted sought to make provision for preventing the pollution or fouling of streams and watercourses communicating with the water-supply of the Corporation; and to alter and enlarge the borrowing powers of the Corporation. A long debate took place, and several members opposed the carrying out of the whole scheme, on the ground that they were without information as to the cost, and ultimately Mr. Emsley limited his motion to the acquirement of the Cloth Hall site, and as thus amended, it was carried by a majority of forty-two to ten votes. Other items mentioned in the original proposal were then put separately and carried.—At the same meeting, Alderman Firth moved,—

That the Council confirm the provisional agreement made by the Highways Committee with the lessors of the Great Ayton Quarry for the termination of the lease of the same upon the 1st of January, 1884, upon the following terms:—The lessors to pay to the Corporation the sum of 550*l.*, releasing the Corporation from all claims and liabilities under the lease, and taking the plant of the Corporation, as it stands, at the quarry; and the Corporation agreeing to take from Mr. Winn, the proposed new lessee of the quarry, 8,000 tons of good machine-broken stone per year, for two years, at 4s. 3d. per ton, delivered on the rail in Corporation wagons at Great Ayton.

Mr. Hunt seconded, and the motion was agreed to.

Newcastle-on-Tyne.—Extensive building operations are about to be commenced at Elswick by the laying-out for building sites of a very large portion of the late Mr. Buddle Atkinson's estate. The estate begins exactly at the western boundary of the borough, and extends westward over 800 yards, and northward to Benwell 820 yards, the total area of the estate being 473,000 superficial yards. The portion at present put into the market has an area of 140,000 superficial yards. It was originally intended to give the streets a width of 40 ft., but to meet the requirement of the Benwell Local Board they were reduced to 36 ft., to make the back streets 24 ft. in width instead of 20 ft. as originally laid out, and the streets will contain, on an average, twenty-eight houses, with an eastern and western aspect. The houses will be tenemented and self-contained, with large yards and all the usual useful outhouses. Clara-street, which will be 46 ft. in width, will be the main artery, running from south to north, and will extend from Scotswood-road on the south to Buddle-road on the north. It will afterwards be extended to Benwell-road, the extreme northern portion of the estate. The houses here will be built on a larger scale than those in the other streets, and will consist of twenty-four with a western aspect, and twenty-two with an eastern aspect. The next street will be School-street, in the middle of which stands a school. The last and the most western street on the estate at present will be Atkinson-road, with a width of 50 feet. The houses, 31 in number, to be built in this street, will be of a superior class, and will be self-contained. Running from east to west, at the northern portion of the estate, will be Buddle-road, having a width of 50 ft. Facing this road blocks of houses will be erected, each block to contain five houses. Plans for the laying-out of the whole estate have been prepared by Mr. William Glover, architect, Market-street, Newcastle.

Exeter.—At a quarterly Court of the Governors of the Devon and Exeter Hospital, held a few days ago, it was resolved to make certain additions and alterations, at an estimated cost of 970*l.*

NEW POST OFFICES.

Belfast.—The committee appointed at a recent meeting of the Chamber of Commerce to examine the plans of the new post-office and report thereon have conferred with Mr. Owen, the architect, who came from Dublin for the purpose. After a lengthened consideration of the question, during which the committee pointed out their views, and the alterations they suggested, Mr. Owen stated that he believed the Board of Works was anxious to accede as much as possible to the wishes of the Belfast merchants.

Llanelly.—The plans for a new Post-office here, with two shops attached, have been approved by the Postmaster-General, and the work in connexion with the new buildings has been commenced. The masonry part of the contract has been entrusted to Mr. David Hughes, of Annesley-street, and the carpentry to Mr. John David, Lakefield. The buildings, which will cost about 2,000*l.*, are to be completed about June next.

ORGANS.

Lustleigh (*Devon*).—The new organ in the parish church of Lustleigh has been opened. The instrument contains:—Great organ,—open diapason, 8 ft.; rohr flute, 8 ft.; salicional, 8 ft.; flute, 4 ft. Swell organ,—Geigen principal, 8 ft.; hohl flute, 8 ft.; dulciana, 8 ft.; vox angelica, 8 ft.; principal, 4 ft.; oboe, 8 ft.; pedal-organ bourdon, 16 ft., thirty notes; two composition pedals to great organ; two ditto to swell organ. The whole woodwork inside mechanism is of hard wood, varnished to protect it from damp, and the wood pipes are treated in the same way. The case is of Indian oak. The organ was built by Mr. Geo. Tucker, Martin-street, Plymouth.

Stonehouse.—The organ at St. George's parish church, Stonehouse, has just undergone several alterations and additions. In the execution of this work Messrs. Hele & Co. have been engaged.

CHURCH-BUILDING NEWS.

Horseheath.—The chancel of Horseheath Church, Cambridgeshire, was re-opened on the 21st ult., after restoration necessitated by the south wall having fallen considerably out of the perpendicular. The wall has now been entirely rebuilt of the old flint stone, and a new chancel door erected. An old oak roof, which was hidden under the plaster ceiling, has been opened out. The old seats in the chancel have been cleared away and oak stalls erected in their places. The interesting old monuments, with the two effigies of Sir Gyles Alington, Master of the Ordnance in the reign of Henry VIII., and of his successors, have been carefully restored, and the coats of arms re-painted, and they are now situated within the new altar-rails so as to be preserved as much as possible from further injury. The brass of Sir Philip De Argentine remains in its position, having by the side of it a brass which was removed from the south aisle, and had been covered many years with seats. The restoration has been carried out by Mr. G. E. Pritchett, of Bishop's Stortford, and the work has been executed by Messrs. Rattee & Kett, of Cambridge. The chancel dates back to the fifteenth century.

Hunslet.—The foundation-stone of St. Cuthbert's Church, Beeston-road, West Hunslet, Leeds, was laid on the 24th ult., by Mr. Reginald Wigram. The new church is intended to supersede a temporary structure which has been used for church services since 1878, in which year it was erected by the Leeds Church Extension Society at a cost of 500*l.* The cost of the new church will be 3,000*l.* The building will be in the Gothic style, and will accommodate 500 worshippers. Messrs. Perkin & Bulmer, of Leeds, are the architects, and the contractors are Messrs. Longley Brothers, of Hunslet.

Linslade (*Leighton-Buzzard.*)—A handsome reredos has just been erected at St. Barnabas's Church, Linslade. It is principally composed of Corsehill red sandstone, the central part above the altar having a pediment enriched with carved cresting and a finial at the apex. The central panel has a richly moulded and cusped arch, with a mottled alabaster inlay, over which is a circular medallion containing the Agnus Dei. The panels on either side of it are square trefoil-headed, with inlay of alabaster The wings, containing circular cinque-foiled cusped panels, inlaid with yellow Mansfield stone, have a rich running foliated frieze with circular medallions at intervals, containing sacred emblems. The surbase of the wings is of Forest of Dean stone. At the same church a memorial pulpit has been erected, the upper part of wainscot richly carved, with some open panels; the lower portion of Corsehill stone with richly-carved capitals, containing various emblematic flowers and foliage. The architect of both works was Mr. B. Edmund Ferrey, F.S.A., and they have been executed by Messrs. White & Sons, of Vauxhall Bridge-road.

Canton (*Cardiff*).—The foundation-stone of the projected Church of St. Catherine, on a site given by the Ecclesiastical Commissioners, in King's-road, Canton, Cardiff, was laid on the 14th ult. At present the erection of three bays of the nave and the north and south aisles are being proceeded with. About 3,000*l.* has been subscribed towards the cost of the edifice. This amount will be nearly expended in the erection of the first part of the building, which will be constructed from designs by Mr. J. Prichard, diocesan architect. The contractor is Mr. S. Shepton. The total cost of the structure, when complete, will be 5,000*l.* There will be immediate accommodation for 422 worshippers, and eventually this will be extended so as to provide for 800 seats.

Edgbaston.—It is proposed to considerably enlarge St. George's Church, Edgbaston, Birmingham. Only the south aisle of the old structure will be interfered with, and the walls of this will be rebuilt in a new position next to the Westbourne-road. It is proposed to build a well-proportioned nave; this is the main feature of the design. There will be an effective clearstory, and the arcades will have to correspond in height with the present ones, but will be more substantial in character. There will be a large chancel, suited to the requirements of a modern choir. The nave of the present church will become a north aisle, and the present chancel will become a chancel aisle. A new south porch will be built, ample pro-

vision being made for the exit of the congregation. It has been the aim of the architect (Mr. J. A. Chatwin) to make the interior effective, and of good proportions. The exterior will be carried out in the same style of architecture as the present structure. The cost of the work is estimated at 6,000*l*. This does not include a reredos, pulpit, or oak choir stalls. The church, when enlarged, will seat 1,300 persons, or 350 more than at present.

St. John's Wood.—Through the liberality of a member of the congregation, a rich traceried carved oak screen has lately been added to the chancel of St. Mark's Church, Hamilton-terrace, N.W., filling up a wide archway on the south side, and thus better connecting the scheme of coloured wall decoration. The architect was Mr. B. Edmund Ferrey, and the screen has been executed by Messrs. Underwood & Sons, of Buckhurst-hill.

Newport (near Barnstaple).—New choir-stalls and prayer-desks have just been placed in the chancel of Newport Church. Mr. Hancock executed the work, including the carving, which is made of pitch-pine, polished. The only thing now wanting to complete the restoration is the seating of the nave and aisle.

Liverpool.—The new Church of St. Mary, Waterloo Park, Waterloo, was opened by the Bishop of Liverpool on the 21st ult. The church is in the form of a Latin cross on plan, with central tower. It is constructed of red sandstone, with freestone dressings of corn-grit, from Bath. The interior is lined with dark crimson bricks, with black bands, interspersed with stone, and all the piers, archings, and mouldings are of Corsham stone. The woodwork is entirely of pitch-pine, and of massive character, with open boarded roof. There is a chancel, with reredos designed by Messrs. O'Neill, of Church-street.

Twyford.—The Church of St. Mary, Twyford, near Reading, Berkshire, has just been enlarged by the addition of a north aisle having an eastern transeptal projection, as also an organ-chamber and new vestry on the south side. All the new open-timber roofs, as well as the new benches, are of English oak, like the rest of the church, which was erected in 1847 from the designs of the late Mr. Ferrey, F.S.A. The walls are principally built of flint, with Westwood stone dressings. The glazing is of cathedral rolled glass in various ornamental lead patterns. The extension and improvement of the warming apparatus has been effected by Messrs. Rosser & Russell, the additional lighting arrangements being by Mr. John Court, of Brompton. The builder was Mr. Weyman, of Henley-on-Thames, and the clerk of works was Mr. Chinnock. Mr. B. Edmund Ferrey, F.S.A., was the architect concerned.

Darlington.—Holy Trinity Church, Darlington, which was re-opened on the 22nd ult. by the Bishop of Durham, has been re-seated, ventilated, and lighted from designs by Mr. G. G. Hoskins, architect.

STAINED GLASS.

Chipping Norton.—A window in the mortuary chapel of the Chipping Norton Cemetery has recently been filled with stained glass, in memory of the late William and Esther Bliss, at the cost of the children of the late Edwin and Mary Bliss. The subject chosen is the appearance of our Lord to Mary Magdalene after His Resurrection. The window is by Messrs. John Hardman & Co., of Birmingham.

Godmanchester.—The large east window of the south aisle of the parish church has just been filled with stained glass to the memory of the late John Thomas Baumgartner, M.D., and also to Philippa, his wife. The window, which consists of five lights, is divided into a top and bottom compartment. The top is illustrative of a portion of the *Te Deum*. "We praise Thee, O God: we acknowledge Thee to be the Lord," being represented in the centre light, and "The glorious company of the Apostles," "The goodly fellowship of the Prophets," "The noble army of Martyrs," and "The Holy Church throughout all the world," being depicted in the other four lights. The lower compartment illustrates the following passages from the New Testament: "I was an hungered and ye gave me meat," "I was thirsty and ye gave me drink," "I was a stranger and ye took me in," "I was naked and ye clothed me," and "I was in prison and ye came unto me." The work was undertaken by Messrs. Thompson, builders, Peterborough, but the glass was stained and glazed by Messrs. Burlison & Grylls, Newman-street, London.

Barkisland Church, Yorks.—The three-light east window of this church has just been filled with stained glass in pursuance of a bequest by the late Mr. Daniel Collins. The subject of the chief central light is the Ascension. In the flanking lights are respectively St. Peter bearing the keys, and St. Paul the sword. These are richly and deeply coloured on diapered ruby backgrounds. The canopies, bordures, and tracery lights are enriched with foliated ornamentation in harmony with the style of treatment, viz., the Late Decorated. The work is by the firm of Powell Bros., of Leeds, whose design was selected in a limited competition, the supervising architects being Messrs. Leeming & Leeming, of Halifax.

Longstock.—The village church of Longstock, Hants, has recently received the addition of three Munich stained-glass windows. That at the east end represents the Crucifixion, one at the south the Holy Family, and one over the font the Lord's Baptism. The whole of the work in these windows has been designed and executed by Messrs. Mayer & Co., of Munich.

DISSENTING CHURCH-BUILDING NEWS.

Gulval.—A new Wesleyan chapel is being erected at Gulval, Cornwall. It is to seat 340 persons, and will have schoolroom, class-rooms, &c., underneath. The cost will be about 1,000*l*. Mr. James Hicks, of Redruth, is the architect.

Stanraer.—A new United Presbyterian church is being erected in Lewes-street by the West United Presbyterian Church congregation, Stanraer. The building adjoins the County Buildings, and is expected to cost about 3,000*l*. The architect is Mr. Pettigrew, Glasgow.

Belfast.—On the 17th ult. the foundation-stones of a new Methodist Church in the Crumlin-road, Belfast, were laid. The new building is to provide for a congregation at present meeting in premises which will shortly be required for other purposes. The building committee having obtained the services of Mr. W. J. Gilliland as their architect, he prepared the plans, and tenders were invited. That of Mr. Robert Corry, Donegall Pass, being the lowest, was accepted at 2,230*l*., which, with cost of railings, architect's commission, &c., will reach a total of 2,500*l*.

SCHOOL-BUILDING NEWS.

Hull.—New schools for the Sculcoates Union, Hull, have been opened. The building is at the rear of the Workhouse on the Beverley-road, and has an entrance from Hilda-street. The school is entirely apart from "the house," the main object expected to be attained being that the children,—who are paupers from no fault of their own,—may be raised from that state, never to return to the workhouse after once clearing its gates. The building is planned upon the "pavilion" system, the central portion being appropriated to the administrative department, and the blocks to the right and left to the girls and infants and boys respectively. The entrance is placed in the centre of the main front, and opens into a spacious hall, to the right and left of which are the master and matron's rooms, with the necessary store-closets and a staircase leading to the sleeping-apartments of the superior officers. The hall terminates in the central corridor, which is of ample width, and branches off right and left to the girls' and boys' departments. In the centre of the main corridor, and at the east side thereof, is situated the dining-hall (which is intended also for Divine worship), and still beyond this the kitchen, scullery, and pantry are placed, the wash-house and laundry occupying the ground at the eastern extremity of the site. The boys', girls', and infants' departments are approached through glass doors, and consist of schools and class-rooms, day-rooms, &c., capable of accommodating 300 children, the necessary lavatory accommodation and bath-rooms being provided in adjacent positions. The buildings have been erected in the most simple materials, plain native brickwork being the greater portion of the work, and stone from Yorkshire quarries, and wood from the ports daily communicated with, have been laid under contribution. The works have been carried on and completed under the personal supervision of Mr. Samuel Musgrave, architect, of Hull, the builders being Messrs. Stamp Bros., of Barton-on-Humber.

Launceston.—The foundation-stone of new Congregational schoolrooms at Launceston has just been laid. The site is in Fore-street, extending back to Tower-street, and the buildings have been designed by Mr. O. B. Peter, architect, of Launceston. The contract has been taken by Messrs. Langman and J. & G. Strike, of the same town, at the sum of 1,061*l*. The design is semi-Gothic, and the material of which the buildings are to be erected is stone.

Books.

Elementary Applied Mechanics. By Thomas Alexander and Arthur Watson Thompson, Civil Engineers. Part II. London: Macmillan & Co.

In the second part of their work the authors continue the application of mechanical science to some of the ordinary structural forms employed by the civil engineer, devoting their attention more especially to the transverse stresses and induced strains of beams. They commence with a proof of the well-known law that the strains at each part of a cross section vary in magnitude in direct proportion to their distances from the neutral axis or plane. They then show how to draw the polygon or curve to represent the bending moments at each point, firstly, by estimating the moments at several points; secondly, by the polar polygon. They show that the ordinates of the parabolic arc represent the moments of deflection at each point in a beam uniformly loaded. They then proceed to the consideration of the effects of all conceivable combinations of local and distributed loads on cantilevers and beams supported on two, three, or many piers. Here it may be remarked that it is not usual to make the end piers closer together than the rest, as in the illustrations given, although it considerably simplifies the calculations and diagrams. The authors show how to represent graphically the maximum stresses produced at all points by various moving loads having particular points of contact, as when a locomotive or train passes over a bridge. This is the most valuable part of the work, and contains much new matter and new methods, although the momentum of the load is not considered, but only its statical effect in its successive positions while passing over a bridge. The article on columns is very brief, but concise, and might with advantage have been amplified. The theory with regard to vertical sheering does not appear quite satisfactory. The following considerations may help to elucidate the subject:—Imagine a rectangular beam supporting a weight at any point, and cut vertically between the weight and one of the abutments, the severed faces being held together say by a magnetic force, allowing vertical slip to take place freely. It is evident that the part of the beam supporting the weight would descend, turning about its support, while the other part would have ascended in a similar manner, and through the same angle, in order to keep the faces in contact. Then, by the principle of virtual velocities, the force acting between the two surfaces necessary to prevent slip would be equal to the force at the support. Hence the vertical sheering forces are uniform between the weight and each abutment, and respectively equal to the supporting force at the abutments.

The part of the work relating to girders will be found particularly useful to railway engineers. The mathematics are as simple as the subject allows, and the work is full of useful examples, which ensure a correct understanding of the principles they illustrate.

Miscellanea.

Wrought-Iron Work.—In connexion with the Winter Exhibition of tapestries from the Royal Works at Windsor, and of wood-carvings under the direction of Mr. Alfred Rogers (wood-carver to her Majesty), to be opened on December 3rd at the above Galleries, there will be held a Loan Exhibition of Wrought-iron Work, chiefly of ancient specimens, under the direction of Mr. Alfred A. Newman.

Liverpool Engineering Society. — The fourteenth meeting of the session was held on the 21st ult. at the Royal Institution, Colquitt-street, Mr. H. Bramall, Mem. Inst. C.E., President, in the chair. A paper, entitled "The Velometer Universal Governors, and Compound Attachment for controlling Low-pressure Cylinders," was read by Messrs. Durham & Churchill, of London. The authors pointed out that absolute immunity from an acceleration of speed in the compound marine engine was impossible of attainment in marine engines, subjected as they are to such sudden and violent variations in the amount of power requisite to drive the propeller. They claimed that when one of their velometers of sufficient power was properly fitted and kept in working order, they could maintain an ordinary pair of compound engines to within a few per cent. of their nominal speed under the most trying circumstances. The second part of the paper was on the compound attachment, a very simple and efficient apparatus operated by the velometer, whereby it is claimed that they can control the low-pressure cylinder as effectually as they do the high-pressure cylinder. A description of the new "Institute Sealed Battery" was subsequently given by Mr. W. H. Fleming.

Lectures on Engineering Subjects.—The Council of the Society of Engineers have arranged for the following series of lectures, to be given in the reading-room of the Society during the winter season:—First course by Mr. William Marriott, F.R. Met. Society, on "Meteorology," on Thursdays, December 6th, 13th, and 20th, 1883, and January 3rd, 10th, 17th, 24th, and 31st, 1884. Second course by Mr. John C. Fell, M.I.M.E., Professor of Electrical Engineering, City of London College, on "Electrical Engineering," on Mondays, January 7th, 14th, 21st, and 28th, February 11th, 18th, 25th, and March 10th, 1884. Third course by Mr. J. W. Wilson, M. Inst. C.E., and Mr. J. W. Wilson, jun., Assoc. Inst. C.E., Principal and Vice-Principal of the Crystal Palace School of Practical Engineering, on "General Engineering Construction," on Thursdays, February 14th, 21st, and 28th, March 6th, 13th, 20th, 27th, and April 3rd, 1884.

Sanitary Institute of Great Britain.—An important meeting was held in Dublin on the 19th ult. to appoint the local officers and to consider the various arrangements to be made for the Congress to be held in that town by the Sanitary Institute in 1884. Sir John Lentaigne presided, and there was a large attendance of gentlemen representing the various leading societies in Dublin. A deputation from the Institute, consisting of Dr. Alfred Carpenter, chairman of the council, Prof. W. H. Corfield, chairman of the exhibition committee, Mr. Ernest Turner, and Mr. E. White Wallis, secretary, attended the meeting to explain the objects of the Institute, and the nature of the congress and exhibition held in connexion with it. The deputation from the Institute visited the buildings proposed for the meetings of the congress and exhibition, and from the way that the preliminary arrangements have been made by the local committee there is every prospect of a very successful congress and exhibition. Sir Robert Rawlinson, C.B., has accepted the presidentship of the Congress, which will open on October 14.

The Leeds School of Art.—The annual exhibition of students' work done at the Leeds School of Art was opened on Monday last, in the Mechanics' Institute. No fewer than 3,246 separate productions, the work of 524 pupils, were sent to South Kensington for examination previously to April 9th, 1883. There were 85 sets, consisting of 368 works in the advanced stages of study, 183 sets consisting of 1,001 elementary works, 667 drawings by 96 pupils of the boys' school, and 1,210 drawings by 160 pupils of the girls' school. The exhibition includes a selection of works from the advanced stages, together with a few elementary works, so as to fairly represent the whole course of study.

Bethnal-green.—It appears that the local authorities in some parts are being awakened to a sense of their responsibilities by the present exchange of ideas concerning the dwellings of the poor. The Vestry of the parish of St. Matthew, Bethnal-green, have served the owners of at least 380 dilapidated houses with notices requiring them to put the tenements in a habitable state of repair. That is satisfactory so far, at all events.

Edinburgh Architectural Association.—The following lectures, visits, &c., have been arranged for:—Dec. 13, "The Rise of the Gothic Style in Northern France," by Professor Baldwin Brown. Dec. 20, "Technical Training in the Collateral Trades a great Factor of Success," by Mr. Edward Calvert. Dec. 21, Annual Dinner. Jan. 9, 1884, "Joiner Work," by Mr. Walter Kirkwood, and "Bellhanging," by Mr. W. Walker. Jan. 23, "Celtic Art," by Mr. R. Thornton Shiells. Feb. 6, "Practical Plumbing," by Mr. Thomas Hume. Feb. 9, Visit to Cowgate, Canongate Tolbooth, and Moray House. Feb. 20, Paper by Mr. W. Ivison Macadam (subject not stated). Feb. 23, Visit to Lawnmarket and Edinburgh Castle. March 5, "General Police and Health Bill for Scotland as affecting Buildings," by Mr. James Simpson. March 8, Visit to Grange House and Craig House. March 13, "Some Notes, Thoughts, and Sketches on the Decorative Arts of Pot-pourri," by Mr. W. W. Macfarlane. March 19, "Renaissance Architecture of Italy," by Mr. R. Rowand Anderson. March 22, Visit to Peffermill, Prestonfield House, and Craigmillar Castle. April 2, "Colour," by Mr. W. Scott Morton. April 5, Visit to Colinton House, Bonally Tower, and Baberton House. April 16, "Electric House Fittings," by Dr. R. M. Fergusson. April 19, visit to Hallyards Castle and Kirkliston. April 30, "Heating and Ventilating Appliances," by Mr. Hippolyte J. Blanc. May 3, visit to Dalhouse Castle and Newbattle Abbey. May 14, President's Address. May 17, visit to Dalmeny House, Barnbougle and Dundas Castles. May 28, Annual Meeting.

Surveyors' Institution. — At the first meeting of the present Session, held on the 12th ult., the President, Mr. Thomas Smith-Woolley, opened the Session with an address, as we have already mentioned. The following candidates were balloted for and declared duly elected:—as Fellows,—Mr. Richard Clarke, Newhall-street, Birmingham; Mr. George Ferris, Pewsey, Wilts; Mr. Joseph William Kemsley, Woodford, Essex; and Mr. George Dennis Martin, Mansion House Chambers, E.C. As Professional Associates,—Mr. Arthur Erasmus Bond, Jermyn-street, St. James's; Mr. Harvey Chevallier, Singapore; Mr. Harry Græme Grant, Surveyor's Office, Great Western Railway, Paddington; and Mr. William Roper, Mount Pleasant-road, Tunbridge Wells. As Associate,—Alfred Octavius Kirby, Old Palace Yard. The next meeting will be held on Monday, December 3rd, when a Paper will be read by Mr. J. W. Willis Bund, on "The Agricultural Holdings Act, 1883." It is announced that voluntary examinations, qualifying for the Classes of Professional Associates and Fellows will be held in the month of April next. These will be the last voluntary examinations for the Professional Associateship. Names of applicants for these examinations are to be sent in before the 12th of January next.

Queen's Cross, Hardingstone, Northamptonshire.—Mr. R. G. Scriven writes to the *Northampton Herald* with reference to this erection, which stands upon ground within the jurisdiction of the Highway Board, and is in a sad state of disrepair. The Highway Board have no power to spend money in the repair of the structure, but they requested Mr. Scriven, as their vice-chairman, being also a member of the Committee of the Architectural Society, to take such steps as may be necessary for ascertaining what ought to be done, and then to appeal to the public for the funds required to carry out the work. Mr. Scriven has accordingly requested Mr. Edmund Law,—whose father's name will be always connected with Queen's Cross as the architect under whose care the restoration of the upper portion was completed,—to prepare a report of the present state of the steps and foundations, with an estimate of the amount required to put them in a proper state of repair. This report it is proposed to lay before the Architectural Society and to appeal for funds for executing the necessary repairs.

The First Avenue Hotel.—We are asked to state that the marbles for the dados of the First Avenue Hotel, of which we spoke last week, have been supplied from the quarries of Mr. A. Folliot fils, of Laval, Mayence, France, who has opened an office in London at 24, Hop Exchange, Southwark.——The whole of the wrought-iron wine-bins and cellar fittings have been supplied by Messrs. Farrow & Jackson, of Great Tower-street.

Vibration of Bridges. — At a recent meeting of the American Society of Civil Engineers, a paper on "Vibration, or the Effect of Passing Trains on Iron Bridges, Masonry, and other Structures," was read by Mr. J. L. Randolph, the chief engineer of the Baltimore and Ohio Railroad, which contained some very interesting facts. Thus, Mr. Randolph referred to the circumstance that double-track bridges are moved in the direction of passing trains, and are consequently twisted, and strains are produced not provided for; also to the fact that cattle-stops and open culverts, where built of rubble-work, have the walls shaken to pieces by vibration. The remedy Mr. Randolph has supplied for these culverts and stops has been to build them of large stones, as nearly the same size as possible. The tall, thin bridge piers and abutments on which iron bridges rest have their stones so much disarranged by vibration as to make it necessary to secure them with timber and iron straps. Iron bridges resting on stone pedestals vibrate in this manner, and receive a return blow from the vibration of the pedestal, particularly if the pedestal is a light structure; but, as the iron and the stone do not vibrate in the same period, there must be a time when the result is a movement in the direction of the force. The effect of this vibration has been particularly noticeable at Harper's Ferry Bridge, where there was a movement of 4 in. in four years. After the insertion of planks between the stone and iron this movement ceased. Where the masonry of piers has a platform of timber between its foundation and solid rock, no displacement of stone has been noticed. Mr. Randolph contends that a monolith would be the best support for structures subject to vibration caused by strains, but that a monolith of the specific gravity of granite would give a damaging return blow. Timber would answer the purpose, but it is perishable. The material which, in his opinion, is most serviceable is an artificial stone which is about two-thirds the weight of granite, is compact, durable, and with very little elasticity. —*Iron.*

English Engineering in Germany.—About fifteen years since, the municipality of Frankfort-on-the-Main determined on abolishing the cesspools and open gutters with which that, like most German towns, was disgraced, and on substituting a regular system of sewers. The work was intrusted to Mr. Lindley, an English engineer, domiciled in Germany, who adopted the method generally employed in this country, and known on the Continent as *tout à l'égout*, of egg-shaped brick sewers, ventilated into the streets, and receiving the whole of the rainfall as well as the sewage proper. Whatever may be the shortcomings of the system itself, they were in this case reduced to a minimum by the excellence of the workmanship and plan, as proved by the fact that periodical flushing suffices to prevent any deposit of silt in the sewers so effectually that no labourer has ever had to enter them with shovel or other implement; a strong contrast to the sewerage of London, where 150 men are constantly employed by the Metropolitan Board of Works, besides those in the service of the local authorities, in removing the solid deposits by manual labour. The sanitary results were as gratifying; the general death-rate has steadily declined from 40 to 20 or less per 1,000; typhoid, once ever present, has been reduced to an eighth of its former prevalence; and diphtheria, the scourge of other German towns, is less fatal than in those of our country.—*The Sanitary Record.* [A full description of the drainage of Frankfort appeared in the *Builder* rather more than a year ago. See vol. xliii., pp. 388, 444, 474.]

Technical Education for Coventry.—In response to a requisition signed by large numbers of the manufacturers and artisans of Coventry, the Mayor recently called a public meeting of the citizens in St. Mary's Hall to take into consideration the advisability of establishing a system of technical education in connexion with the mechanical and textile industries of the city. Resolutions affirming the desirability of establishing technical schools, and promising aid in the work, were carried. It was stated that sums of from 3,000*l.* to 4,000*l.* would be needed for building and site, and from 2,500*l.* to 3,000*l.* for the fixtures and equipment of the building and workshops, making a total of 7,000*l.*, and that it would be necessary also to provide an annual income of at east 300*l.*

The Alterations in the Minster Yard, Lincoln.—Sir Roger de Coverley remarked that "all church work is slow work." The worthy knight's observation is confirmed by the fact that it is exactly a century since the scheme, now happily near completion, for lowering the road along the south side of the Minster, removing the iron gates and railings at the west end, and throwing open the front, was proposed by "the ingenious Mr. Essex," who was at that time the consulting architect of the Dean and Chapter. In 1770, Mr. John Hayward, then cathedral surveyor, presented an estimate for "lowering the earth and pavements of the area within the stone basement and iron palisades, to make the outside level with the church floor," amounting to 137*l.* 17s. 3d. The stone basement and palisade, with the gates (which in themselves are beautiful specimens of iron work, and deserve honourable treatment if permanently removed from their present position), were erected "according to a draught made by Francis Bernard, esq.," the consent of the Dean and Chapter being given December 1, 1748. Their erection is stated to have been "a generous design of Mr. Chanter Trimnell, with his own and his friend's subscriptions." Chanter Trimnell deserves to be commemorated as one of the first who took any decided steps for the improvement of the precincts of the Minster. The churchyard was levelled, the tombstones removed, and the area in front enclosed with the iron railing and gates, now removed. These last, though pronounced by the late Mr. Pugin "most offensive and more in character with Greenwich Hospital than with Lincoln Minster," are not without much dignity, which it is not unpardonable to recognise and to regret. Now that Chanter Trimnell's rails and gates are removed, and while it is still uncertain what form of enclosure will be adopted, it may not be amiss to quote Mr. Pugin's views on the points, *valeant quantum*. He says, "A finely-moulded coped wall, of moderate height, with massive gates (not of cast-iron tracery) would form a suitable enclosure, within which a stone cross, raised on steps, should be erected, similar to those formerly placed in the garths of all large churches." Mr. Essex's recommendation for removing the low walls and palisades in front of the "Number Houses" is also one that well deserves consideration. — *Lincolnshire Chronicle.*

The Old University Buildings, Glasgow. Mr. Alexander George Thomson, I.A., in a letter to a Glasgow paper, suggests that steps be taken for the conservation of the picturesque façade of the old University in the High-street. The railway company has, he says, on more than one occasion, been urged by the city authorities to carry out the widening of High-street in front of the College Station; but this public improvement, desirable though it may be, would involve the demolition of the street frontage. The company would, Mr. Thomson thinks, be willing to meet the wishes of the community in the disposal of the materials. On this assumption, he suggests that the chief decorative members of the ancient stonework should be embodied in the construction of a principal gatehouse or lodge at one of the entrances to the grounds of the new university, say the north-western entrance, opposite Hillhead-street, which is still unprovided with permanent buildings. An inscription should here record the circumstance of the escutcheon (which bears the date of 1658) and principal architectural details having formed part of the original edifice. As a successful instance of adaptation of the same nature, Mr. Thomson points to the fine old staircase which formerly stood in the quadrangle in High-street, and has been re-erected at the west end of the new university.

Overcrowding at Camborne.—The *Western Morning News* has been describing the serious overcrowding which exists at Camborne. At a meeting of the Local Board held on the 23rd ult., it was admitted that there was a great deal of overcrowding in the town. Mr. Vivian asked whether the Board could not use its influence for better terms for building? The Chairman was afraid the Local Board was helpless in the matter. He understood ground could be had for building for 8d. a lace, or 5*l.* 6s. 8d. an acre. He did not suppose land would now fetch more than 30s. an acre. The subject dropped with expressions of regret on the part of the Board that it had no power to remedy the evils.

M. De Lesseps and St. Giles's Cathedral, Edinburgh.—M. de Lesseps, in the course of some remarks at Edinburgh the other day, laid claim to Scottish descent. Mr. Will. Findlay, writing to the *Scotsman*, says that M. de Lesseps's twice-repeated story of an ancestor of his named Lesseps or Lessels being the builder of St. Giles's Kirk, must be dismissed as a "traveller's tale." "Somebody," says Mr. Findlay, "has been hoaxing the distinguished Frenchman. There are, of course, no vestry books which he could have seen, for St. Giles's never had a 'vestry'; and if that term be taken as a foreigner's error for 'kirk-session,' it is equally impossible that he could have seen in any session-book such a statement as he supposes. In fact, there is no Edinburgh session-book of the period he refers to known to exist, and there certainly was at that time no kirk-session of St. Giles's. Nobody knows who built St. Giles's Church, although the builders of important additions to it are mentioned in old documents. 'Jonne of Scone' added five chapels on the south side of the nave in 1387, and from about that date we have no record of any great work on St. Giles's till the building of the Preston and Chapman aisles, the architects of which may yet perhaps be identified. After the Reformation, when the church suffered some injury internally, those who cleared out the rubbish and built the 'parpal' walls could scarcely be called builders of St. Giles's, and there was no other important change on the fabric till 1636, when the famous master-mason, John Mylne, the builder of the Parliament House, undertook the 'reparation' of the east end of the choir, a work which was not completed when Jenny Geddes flung her stool. The next material change was in 1829, when Mr. Burn, who has also the distinction of erecting the lath-and-plaster Church of Dunfermline, expressed in stone the best idea of that dark age of architecture which we see in the present external aspect of St. Giles's. These are all the works which might be described even by hyperbole as 'construction' of St. Giles's, and no Lesseps or Lessels had anything to do with them. M. de Lesseps has evidently not seen Mr. Hay's magnificent, and at the same time reverent, restoration of what remains of our famous metropolitan parish kirk, or else he would hardly have imagined that it was constructed so recently as 200 or even 300 years ago."

Modern Sculpture and Competition.—On Monday evening last Mr. E. W. Gosse delivered a lecture to the members of the Birmingham and Midland Institute on "The Public and Private Uses of Modern Sculpture." In commencing, Mr. Gosse said he believed the subject of his lecture was one which would within the next ten years occupy a great deal more of public attention than it had hitherto done. Sculpture had been fostered in France in some degree by the Roman Catholic religion, and in this one art France was far ahead of any other country. The present system of public patronage was, he thought, altogether unwholesome to English art, and distressing to the sculptors. He referred to the system of public competition. The profession, whenever it found occasion to speak, bewailed its fate on this question, and many sculptors talked of forming a sort of trade union to put down the system altogether. For his own part he was not opposed to it in theory, but he agreed with its fiercest opponents in what they said about it in practice. In the first place, the constitution of the juries was so careless and irrational that no artist of position liked to submit his work to judges so thoroughly unprofessional. The strongest objection, however, which sculptors had to the system was that it involved a great waste of time and money. Why should a competition be needed at all? The names of the eminent sculptors were well known, as the names of the eminent painters were; yet if a competition were proposed to painters they would laugh in our faces. The lecturer then dwelt upon the public and private forms of sculpture, remarking in reference that a great deal of what was most refined and beautiful was only fitted for the inner room.

Messrs. Clayton & Bell.—These well-known artists in stained glass, who have done so much good work, have just received an official recognition of their merits in the shape of a warrant from the Lord Chamberlain appointing them glass-painters to the Queen.

Thames Communication.—A meeting of the inhabitants of Aldgate and the neighbouring districts was held yesterday at the Board-room of the Whitechapel District Board of Works, Great Alie-street, Whitechapel, "To consider whether a communication across the Thames in a line with the Minories to Horselydown by means of a low-level bridge would not be preferable to the costly and inconvenient mode of communication proposed by the Metropolitan Board of Works, to be made by means of a tunnel or subway under the river from East Smithfield to Dockhead." The chair was occupied by the Rev. J. M. Roberton, M.A., vicar of St. Botolph Without, Aldgate, and there was a large attendance of the most influential inhabitants of the neighbourhood. The chairman remarked that nothing but a low-level bridge, with openings to allow of shipping passing through, would satisfy the inhabitants of East and South-East London. Mr. H. Hoare (Hoare & Co.) moved the following resolution:—"That this meeting is of opinion that the wants of East London are not met by the proposal for a tunnel from Nightingale-lane, East Smithfield, to Dockhead, and that a scheme, of which a low-level bridge, with an opening for shipping at or near the Tower of London, will form part, will alone meet the requirements of the inhabitants of East and South-East London." Mr. W. Hora, in seconding this, remarked that one of the principal arguments used against the form of communication advocated by the resolution was that it would destroy the trade of the port of London; but that argument, he contended, was utterly fallacious, and had been invented by those whose interest it was to prevent the construction of the bridge. The resolution was unanimously carried, as also was one declaring that, as the burden of the coal-tax had been borne for many years by the inhabitants of East London for the benefit of other parts of the metropolis, the erection of the much-needed low-level bridge should not be hindered by any question as to the renewal of that tax. A vote of thanks to the chairman brought the proceedings to a close.

Newcastle-on-Tyne Fine Art Exhibition, 1884.—It is proposed to hold an Exhibition of Fine Art at Newcastle-on-Tyne, from the 18th of January to the 16th of February, under the auspices and management of the Bewick Club, The Bewick Club is a recently-formed association, comprising nearly all the artists of the district, who are now attempting to institute an Annual Exhibition of Works of Art under their own management. They hope to obtain the support and co-operation of their brother artists throughout the country, inasmuch as the exhibition, though under the control of a committee appointed by the Club, will in no sense be a special exhibition of the works of its members, who, as exhibitors, will be placed on precisely the same footing as other artists. Artists who intend to contribute should send immediate intimation to the Secretaries, Bewick Club, 3, St. Nicholas Buildings, Newcastle-on-Tyne, from whom further information may be obtained.

Improvement of the River Tyne.—The Tyne Commissioners have unanimously decided to carry out another of the important series of river improvements included in the late Mr. Ure's comprehensive scheme for widening and deepening the Tyne. Bill Point, which projected at least 450 ft. into the stream, and was a source of danger to navigation, has been successfully removed, and a splendid channel of from 20 ft. to 22 ft. at low water, and 37 ft. at high water, now flows in its place. A similar danger to navigation exists at present at Bill Quay, on the south side of the river, and it has been agreed to sanction the negotiations which the committee made for the purchase of the necessary land to effect the desired improvement. The total cost of the improvement is estimated at 53,600*l.*

Theatre Royal, Edinburgh.—At a meeting of the directors of the Theatre Royal, held on the 27th ult., the plans of Messrs. Geo. Dobie & Son were unanimously approved of for the re-decoration of the house prior to the commencement of the pantomime season.

Society of British Artists.—At a general meeting of the Incorporated Society of British Artists, held on the 21st ult., the following were elected members:—Mr. M. P. Burton, Mr. Alfred East, Mr. W. Ayerst Ingram, Mr. James Macculloch, and Mr. Thomas Pyne.

St. Bartholomew's, Smithfield.—We read in the Church papers that the Rev. F. P. Phillips, the patron, has presented the Rev. W. Pankridge to the grand old church of St. Bartholomew, Smithfield, of which the late Rev. J. Abliss had for sixty-four years been the rector. We earnestly trust that this opportunity will be seized upon for a complete restoration of a church which is certainly one of the finest examples of Anglo-Norman architecture in London. The church, spacious as it is, is but the choir of the priory founded by Rahere in 1124. Sequestered by Henry VIII., the advowson and a large part of the monastic building given to his favourite Rich, the church in the seventeenth century seems to have suffered a worse fate: much was then somehow alienated. Over the fine apse is a room used for manufacturing purposes, while the north transept is desecrated by being used as a shoeing forge. A large sum was expended,—and well expended,—under the care of the late rector, but it was utterly inadequate for anything approaching a satisfactory restoration. We understand an effort will probably be made to restore the church to something of its original state, and though it is true a very large sum will be required, yet we cannot but hope private and public liberality will not fail to carry out a work so interesting alike to antiquaries and Churchmen.

Scheme for a Central London Fish-market.—The prize of 50 guineas for a scheme for a Central London Fish-market, offered in connexion with the International Fisheries Exhibition, has been awarded to Messrs. J. J. Cayley and H. H. Bridgman. The scheme adopted by the designers is to erect an iron structure at that part of the south side of the River Thames, opposite Charing Cross, which lies between Waterloo Bridge and Charing Cross Railway Bridge, where there is at low water a bank of mud the whole length, stretching out to about 320 ft. from the shore. This structure would be raised on columns so as to bring the principal floor on a level with the roadway of the two bridges, and would, in fact, join on to Waterloo Bridge at the one end and Charing Cross Railway Bridge at the other. This floor would be the principal market floor, and would have an area of about four and a half acres at a height of 50 ft. above high-water mark. The Market would be divided into wholesale, semi-wholesale, and retail sections, and through the wholesale section would run railways, which would be in communication with all the fish-bringing lines in the kingdom. Twenty-five feet below such market floor there would be a sub-floor, upon which there would be room for twice as many vehicles under cover as are now estimated to attend the London market. Further particulars of the scheme were given in our columns two years ago, see *Builder*, Oct. 29, 1881, p. 556.

"The Beginnings of Art."—On Monday afternoon Mr. Harry Quilter delivered in the Mayor's Parlour of the Town Hall, Manchester, a lecture on "The Beginnings of Art." Mr. Quilter said there was no time for art; it was either good or bad; it was never either new or old-fashioned. The essential qualities of art were always the same, and were subject to no change or decay. Whatever other qualities it might possess great art had always these three, love, gentleness, and truth. Art loved what it depicted, and from that love sprang the gentleness of its manner and the truth of its likeness. The beginning of art in the artist was the moment that his soul began to pass into his work. But what were the beginnings of art in communities like Manchester and London and in individuals? They could never have even the beginnings of art until their thoughts were true thoughts, until they had a true feeling for themselves and rest of the world; and the beginning of art in the people could not be secured until they were led to imbibe a noble discontent with their straitened bonds of existence.

Diphtheria in North Wales.—The outbreak of diphtheria at Boddfordd, a secluded village in Anglesea, continues to spread. Three fresh outbreaks have occurred and another death, making six deaths and twenty persons affected. Dr. Evans, medical officer of health, reports that Black's houses, where two fresh cases happened, were unprovided with drains, and pigs were kept very near them, the drainage from the styes being stagnant in open gutters close to the houses.

A New Exchange for Amsterdam.—Preparations are in progress for a competition for a new exchange in Amsterdam. The competition is to be international in character, both as to competitors and jury. In judging, the jury is to be guided solely by the disposition of the available space, the arrangement of the rooms, and the artistic nature of the design. No estimate is required, but the cost is not to exceed two million florins (167,000*l.*). Besides being international, the competition deserves mention on account of the preliminary competition which is to take place. Ten of the more meritorious designs are to receive premiums of 1,000 florins each; but only the authors of the five best designs are to be admitted to a closer competition, for which prizes of 10,000, 6,000, 5,000, 4,000, and 3,000 florins are to be given. The author of the first design will be appointed the architect of the building, at a salary to be fixed by the municipal council of Amsterdam, but in which the premium of 10,000 florins will be included. May 1, 1884, is the date by which plans must be sent in.

The Southport Foreshore Question.—Some time ago the Chancellor of the Duchy of Lancaster, in reply to the appeal of the Corporation to use his good offices in the settlement of the foreshore question, gave his final award, which was to the effect that the Corporation should purchase from the landowners the foreshore fronting the borough for 10,000*l.* After some consideration the Corporation wrote to the Chancellor asking him to make certain modifications in his award,—that the area should be extended and the price reduced. The Chancellor has now written stating that he cannot depart from the terms he has already suggested for a settlement. The Parliamentary and Foreshore Committee met on the 23rd ult. to consider the Chancellor's reply, and after much deliberation came to the conclusion to refer the letter to the Council, not being able to see their way to accept Mr. Dodson's terms. They wish to possess the whole of the foreshore from Birkdale boundary to Crossens Channel.

Dynes Hall, Halsted, Essex.—We are asked to say that the sanitary arrangements and decorations at this mansion (to which reference was made in our last number) have been carried out by Messrs. David G. Laing & Sons, of Duke-street, Adelphi.

TENDERS.

For additions to the Workhouse Infirmary, Hampstead comprising a circular ward for seventy-two beds, new kitchen, corridors, &c., for the guardians. Mr. Charles Bell, architect, 9, New Broad-street. Quantities by Mr. Henry Lovegrove, 26, Budge-row:—

Perry & Co.	£12,439 0 0
Josolyne	12,375 0 0
Conder	15,350 0 0
Nightingale	12,246 0 0
Bray & Pope	12,115 0 0
Peters	11,857 0 0
Green	11,840 0 0
Prior	11,760 0 0
Staines & Son	11,688 0 0
Allen & Son	11,680 0 0
Martin, Wells, & Co.	11,540 0 0
Gould & Brand	11,471 0 0
Foster & Dicksee	11,222 0 0
Smith & Son	11,164 0 0
Gregar	11,141 0 0
Holliday & Greenwood	10,963 0 0
Bolding	10,919 0 0
Shurmur	10,890 0 0
Hobbs	10,800 0 0
Tink	10,593 0 0
Gibbons (accepted)	10,400 0 0
Ironwork.	
Young & Co.	£960 0 0
Goddard & Massey	851 0 0
Shaw & Co.	825 0 0
Goodenough	809 0 0
Rownson, Drew, & Co.	765 0 0
Williams (accepted)	750 0 0

For erection of sea-water baths, South Shields. Mr. J. H. Morton, architect. Quantities by Mr. G. Connell:—

J. Elliott, North Shields	£5,259 0 0
W. M. Hudson, South Shields	4,995 0 0
D. Kennedy & Son, Jarrow	4,812 2 11
F. Mackey, South Shields	4,759 18 10
Broomhead & Keswick, Newcastle	4,745 0 0
R. Atkin & Co., South Shields	4,532 0 0
J. Storar, Jarrow	4,377 10 0
Holliday & Christie, South Shields	4,249 8 1
W. Scott & Son, Sunderland	4,145 0 0
D. Lawes & Co., South Shields	4,084 17 9

For building congregational church, South Shields. Mr. J. H. Morton, architect. Quantities supplied:—

J. Elliott, North Shields	£3,770 0 0
F. Mackey, South Shields	3,746 0 0
Hogg & Barrow, South Shields	3,681 0 0
A. Thompson & Son, Gateshead	3,563 0 0
Holliday & Christie, South Shields	3,423 0 0
W. Scott & Son, Sunderland	3,342 0 0
W. M. Hudson, South Shields*	3,243 0 0
J. L. Miller, Gateshead	3,234 0 0

* Reduced and accepted at 3,190*l.*

For the erection of a house in Westoe-lane, South Shields, for Mr. Marshall. Mr. J. H. Morton, architect. Quantities by Mr. G. Connell:—

A. Thompson & Son	£1,511 10 0
Holliday & Christie, South Shields	1,305 0 0
J. Moore, South Shields	1,305 0 0
J. Storar, Jarrow	1,288 5 0
Hogg & Barrow, South Shields*	1,284 2 6
R. Aitken & Co., South Shields	1,279 10 0

* Accepted.

For proposed enlargement of the Royal Hospital for Diseases of the Chest, City-road. Mr. John O. Abbott, architect. Quantities supplied by Mr. Geo. Jackson:—

		With Additional Story, &c.
Cornish & Gaymer	£11,540	£12,922
Longmire & Burge	11,240	13,199
Tyerman	10,850	13,012
Nightingale	10,680	12,762
Roberts	10,674	12,705
Paramor & Son	10,660	12,655
Lawrance & Sons	10,623	12,520
Dove Bros.	10,335	12,300
Brass	10,283	12,193

For the completion of No. 3, St. Ronan's-terrace, Southsea, for Messrs. Saunders, Hawksford, Bennett, & Co. Mr. T. Fleming, architect, Waverley House, Southsea:—

Sheaf & McPhail, Kingston	£420 0 0
F. G. White, Londport	315 0 0
A. Evans, Southsea	300 0 0
J. Howard, Southsea	295 0 0
C. Randall, Southsea	270 0 0

For erection of house in Lennox-gardens, on the Cadogan Estate, for Mr. Percy Mitford. Mr. C. N. Beazley, architect. Quantities by Messrs. Stoner & Sons:—

	House.	Extra for Wainscot Floors.	Extra for Wainscot Joinery.
Peto Bros.	£8,957	£155	£509
Longmire & Burge	8,949	152	345
Higgs & Hill	8,884	184	380
Holland & Hannen	8,673	241	485
Larter & Son	8,594	160	475
Nightingale	8,512	183	386
Ashby Bros.	8,492	218	431
Boyce	8,443	280	485
Manley	8,416	150	475
Simpson & Son	8,197	170	425
Brass	8,197	159	389

For reconstruction of Sparsholt-road, for the Islington Vestry:—

Pizzey, Hornsey	£150 0 0
Trow, Dalston	149 10 0
Taylor, Holloway	135 0 0
Jackson, Finsbury Park	131 0 0
Walker, Holloway	128 0 0
Brown, Holloway	127 8 0
Williamson, Holloway	125 10 0
J. Bell, Wood Green (accepted)	112 0 0

For making up road and curbing and channelling same, for the Acton Local Board:—

Narroway, Acton	£4,420 17 0
Sears, Acton	2,481 17 6
Nicholas, Wood Green	1,675 0 0
Atkins, Acton	1,601 3 4
Pizzey, Hornsey	1,440 0 0
Bowles, Acton	1,430 0 0
Nowell & Robson, Kensington*	1,369 0 0

* Accepted.

For works in connexion with the formation of Staveley Cemetery, for the Chesterfield Union Rural Sanitary Authority. Mr. R. Butterworth, architect. Quantities supplied:—

Contract No. 1.—Excavators' Work.

J. Fidler, Eckington	£157 0 0
S. Walker, Chesterfield	112 16 4
W. Forrest, Chesterfield*	106 14 0
E. Littlewood, Masborough	92 5 0
W. Froggatt, Chesterfield	87 17 2
J. Cropper, Brimington	82 0 0

Contract No. 2.—Ironfounders' Work.

H. Holdsworth, Rotherham	£355 0 0
J. Fidler, Eckington	350 0 0
G. Woodhead, Rotherham	297 0 0
W. Haslam, Hardstaff	293 9 4
W. Drake, Sheffield	272 8 0
J. Wharton, Chesterfield*	270 0 0
F. W. Dudley & Co., Chesterfield	250 0 0
Merryweather & Co., Sheffield	248 10 0

Contract No. 3.—Builders' Work.

R. Langley, Bolsover	£1,726 16 3
J. Cropper, Brimington	1,673 0 0
J. Fidler, Eckington	1,566 0 0
W. Forrest, Chesterfield*	1,413 4 8

For the whole work (inclusive).

W. Mullins, Staveley	£1,730 0 0

* Accepted.

For heating-apparatus for new schools, for the Leamington School Board. Messrs. Geo. Benjamin Nichols & Sons, architects, London and Handsworth:—

	Leicester-street.	Shrubland-street.
Jeakes & Co., London	£465 0 0*	...
W. Warwick, Leamington	220 0 0	... 228 0 0
E. Fardon, Leamington	228 12 6	...
W. Jenkins, Leamington (accepted)	148 13 7	... 171 4 8

* For the two.

Accepted for cleansing ashpits, &c., within the borough of Leeds, during the ensuing three years, for the Town Council:—

E. Robinson	£36,800 0 0

Accepted for road-making, New Maldon Estate. Mr. J. R. Gover, surveyor:—

Atkins	£430 0 0

For Nonconformists' chapel and enclosure-walls, &c., for the New Brentford Burial Board. Mr. C. J. Gladman, architect, Bush-lane.

Bryant	£1,219 0 0
Miller	1,160 0 0
Haynes	1,000 0 0
D. D. & A. Brown	979 0 0
Bloomer	949 0 0
Everett	925 0 0
Maton	900 0 0
Barnes	896 0 0
Dorey	883 0 0
Grover	880 0 0
Hickingbotham	867 0 0
Gibson	830 0 0
Whitman	776 0 0
A. & C. Addis	760 0 0

For erecting stables to Cromwell Lodge, Lewin-road, Streatham, for Mr. A. S. Groom. Mr. S. B. Grosvenor, architect:—

Oldis Bros.	£590 0 0
Fisher	491 0 0
Pickersgill	486 0 0
Beale	475 0 0
Bassett	475 0 0
Freight	473 0 0
Anley (accepted conditionally)	454 0 0

For fittings for premises in rear of No. 316, Oxford-street, and No. 1, Chapel-place, for Messrs. D. H. Evans & Co. Mr. Owen Lewis, architect, 7, Argyll-street.

Panter & Powditch	£1,645 0 0
Sage	1,598 0 0
Drew & Cadman	1,444 0 0
Salter (accepted)	815 0 0

For completion of four houses, Disraeli-road, Beaconsfield-road Estate, South Ealing. Mr. W. H. Bayfield, architect, Ealing.

A. Keeling, Ealing	£1,400 0 0
Geo. Cox, Ealing	1,216 0 0
Lipscombe, Walthamstow	1,137 0 0
Gillard & Gillard, Acton	1,050 0 0
Roberts, Hounslow	1,015 0 0
Pollard, Ealing	983 0 0
Van Camp, Kilburn	920 0 0

For improvement of Newport-road, and laying of new sewer, Ventnor, for the Local Board. Mr. Robert S. Scott, C.E., Town Surveyor. Quantities supplied:—

	Road.	Sewer.
E. Pritchard, Sandown	£950 0 0	£76 18 0
W. Hall & Co., Portsmouth	943 0 10	69 1 6
J. Newnham, Ventnor	887 4 0	67 18 0
G. Hayles, Shanklin	845 0 0	75 0 0
R. Beavis, Ventnor	800 0 0	64 0 0
Sims & Heal, Ventnor	799 10 0	58 10 0
J. Harvey, Ventnor	790 0 0	60 0 0
G. Bannister, Ventnor	768 11 4	65 0 11
W. H. Wallder, Ventnor	745 5 0	69 15 0
G. Beavis, Ventnor		67 18 0

For new offices at Leyland, for the Blainscough Hall Colliery Company. Mr. David Grant, architect, Preston:—

T. Croft, Preston (brickwork).
R. Croasdale, Preston (plumbing, painting, &c.)
A. Tomlinson, Leyland (joiners' work).
W. Berry, Leyland (stonework).
T. Spibey, Leyland (plaster work).
J. Bowling, Leyland (slating).
Total amount, 158*l.*

For an additional girls' wing to the Regent's-lane schools, for the West Ham School Board. Mr. J. T. Newman, architect, 2, Fen-court, Fenchurch-street. Quantities supplied by Messrs. Curtis & Sons:—

Brightmore	£2,827 0 0
Harris	2,759 0 0
Hoskings	2,229 0 0
Catley	2,216 0 0
Gregar	2,150 0 0
Hearle & Son	2,092 0 0
Cox	2,050 0 0
North Bros.	2,048 0 0
Reed	2,040 0 0
Parfitt	2,025 0 0
Nightingale	1,971 0 0
D. D. & A. Brown (accepted)	1,969 0 0
Gentry	1,785 0 0

For roads and sewers for the Parkeston Brick Company. Messrs. Whitmore & Reeves, surveyors, London and Chelmsford:—

W. Nicholls, Wood Green (reduced and accepted) £870 0 0

For additions and alterations to school house, Silesia College, High Barnet. Messrs. Prickett & Venables, surveyors:—

Sheppard	£541 0 0!
G. W. Miller, High Barnet	499 0 0
Marriott Bros., High Barnet	477 0 0
W. James, High Barnet	367 0 0
Woodhall, Welstone	335 0 0!

For building six cottages in Bailey's-lane, Stamford Hill, for Mr. A. Sanders. Mr. Edward Brown, architect, Hanbury-street, Spitalfields:—

Christoffer (accepted) £990 0 0

For erecting villa residences at Higham Hall Park, Woodford, for Mr. T. C. Warner, under the superintendence of Messrs. Farebrother, Ellis, Clark, & Co.:—

S. J. Scott (accepted).

Superstructure, St. Luke's Church, Nightingale-lane.—Mr. Thomas Gregory, of Clapham Junction, writes to say that his tender, the lowest one, should have been marked "withdrawn"; otherwise it reads as though a higher tender had been accepted in preference to his, which is not the case. The omission was not ours.

Artisans' Dwellings, Petticoat-square.—In the list of tenders in last week's *Builder* (p. 709) for artisans' dwellings, Petticoat-square, the name of Mr. Horace Jones was given as the architect. We are informed, however, that the designs were prepared by Mr. William Haywood in his official capacity as Engineer to the Commissioners of Sewers.—In the same list of tenders, for "Dicks," 68,000*l.*, read "Chas. Dickinson." We inserted the list as it was sent.

Disclaimer.—Mr. Alexander M. Greig writes to say that he is *not* the architect for either of the works at Chiswick and Brentford, the tenders for which were published in our last (p. 710).

To Contributors and Correspondents.

All Letters and Communications referring to Literary and Artistic Matters must be addressed—

"*To the Editor of* The Builder,
46, *Catherine-street,*
Covent Garden, W.C.,"

And not to any individual by name.

T. C. S., Montreal (book mentioned is out of print).—J. B. P.—E. L. (send particulars).—C. P. H.—G. & S. (will be attended to).—A. W. (not required, except an occasional note of some special matter).—F. B. (below our mark).—C. N. (we will not publish any tender of which amount is not given).—"One Interested" (better apply to the Society referred to).—Belsize (fear we cannot give more space to the subject).—G. & S., Air-street (too late for this week).—W. J. H. L.

Correspondents should address the Editor, and *not* the Publisher except in cases of business.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

Note.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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